The essays in this volume are an attempt to tease out from the scant archaeological (and to some extent historical) sources available, some information on certain aspects of rural societies in the past: mobility, subsistence from animal herding, symbiosis between crop production and animal rearing, situating hunters and gatherers, and the importance of forest as integral to rural life rather than the dichotomous 'other' of the field or village. There is also an attempt to bring out the ways in which tribal society, continuously misrepresented in academia today, laid the foundations of many aspects of Indian civilization in the remote past.

Shereen Ratnagar gave up her Professorship in Archaeology at the JNU when it ceased to be fun and has since been researching and teaching in various places. Her interests include the bronze age, trade, urbanism, pastoralism, and, recently, the social dimensions of early technology. She lives in Mumbai.

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Shereen Ratnagar
The Other Indians
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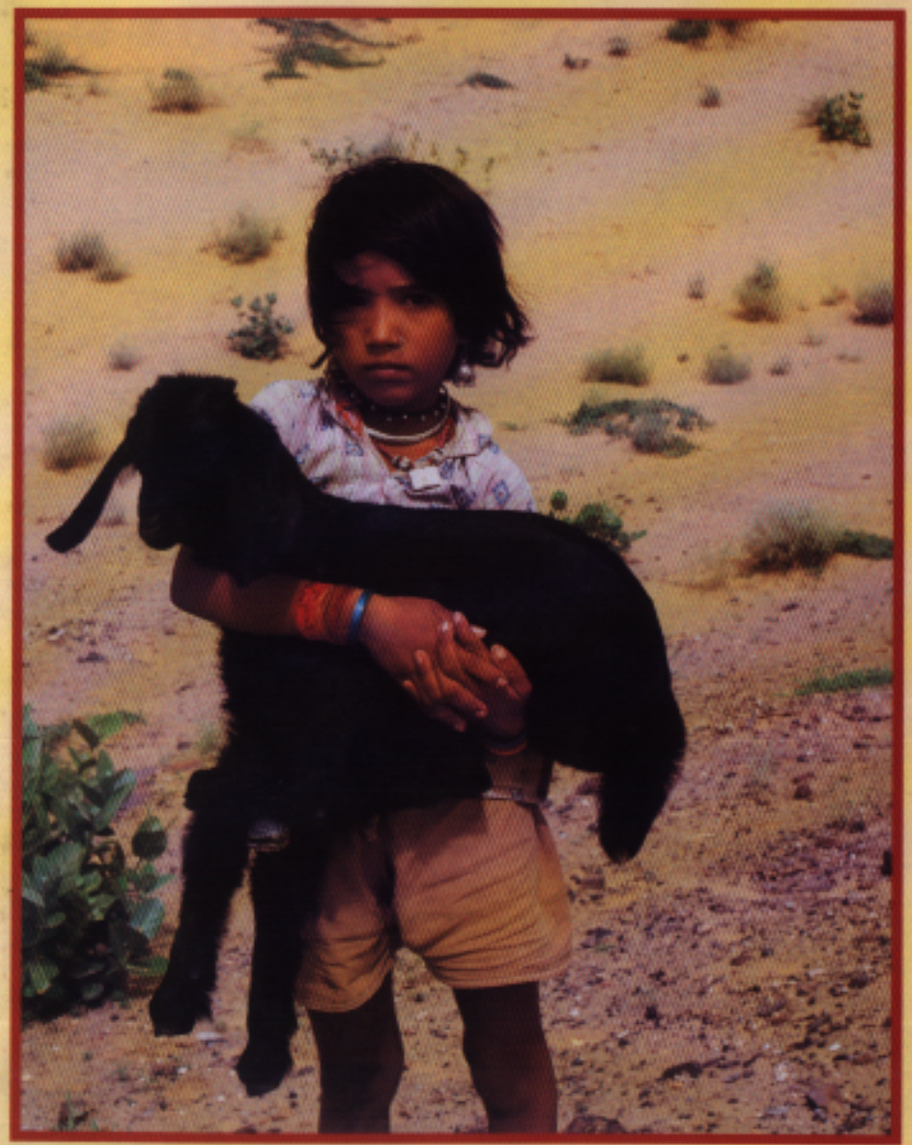
THE OTHER INDIANS

Essays on Pastoralists and Prehistoric Tribal People

SHEREEN RATNAGAR



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INTRODUCTION

One of the major concerns in Indian history is agricultural production, a rubric that subsumes rural settlement, land grants to temples and brahmins, irrigation innovations, and the revenues that various states derived from their rural populations. The essays in this volume, however, look to rural societies other than surplus-yielding peasantries. The essays deal with hunter-gatherers, animal-breeder pastoralists, and agricultural groups that were not stratified by either class* or caste distinctions.

Written by an archaeologist, the papers inevitably concern such societies of the remote past. Yet it is known that groups of hunters, herders, and tribal agriculturists have made their presence felt in one or other way up until the modern period. The reader will, hopefully, be convinced by the essays that follow that such a

* By class stratification we mean the differentiation of groups within a society according to differences in access to/ownership of the basic productive resources (a few own the land or other means of production, others are smallholders or constitute a landless peasantry), differences in the contribution of labour (some people produce food, craft items, or weaponry for the direct or indirect benefit of a few), and differences in entitlement to the social product (with elites as conspicuous consumers of craft products or trade wealth, and elites deciding on how output will be allocated). Stratification is institutionalized by states: legal and political offices and procedures (of administration, record keeping, the maintenance of laws, hierarchies of command, etc.) enable the rulers to enjoy their material and social privileges. In turn, it is the state institutions that make

Flexibility in different modes made possible by:
a) less population and more resources;
b) no private property;
c) social institutions which stress sharing, consideration for kinsfolk and value of generosity

phenomenon is not reducible to archaism or 'survivals', or to the (probably misguided) notion that Indian civilization is characterized by traditionalism. Instead of parroting the cliché that the bullock cart and the nuclear reactor typically co-exist in India, we could shift our focus to the idea that the persistence of certain forms of livelihood and certain kinds of social organization entailed an inherent flexibility. This flexibility is evident in the diverse habitats and fluid territories that were occupied, in the multiple uses to which basic forms of stone, bone, shell, and bamboo tools were put, and in the range of foods that were eaten. Flexibility and resilience were probably made possible by the fact that populations were spread thin on the ground and by social institutions that stressed sharing, consideration for kinsfolk, and the value of generosity. All of these may be seen as underwritten by the absence of private property in land, herds, river resources, pastures, or forests. Whereas private property entails exclusive rights of holding, usage, and disposal, group rights enjoyed by hunters or tribes meant the overlapping stewardship of the tribe's ancestors, of the current elders or chief, and of the tribal family actually tilling a particular piece of land, each in its own context, and also concurrently. And so a descent group would not cut down its sacred grove, for instance, as the rights of its future members would be violated. In sum, collective ownership does not grant exclusive rights of disposal. Needless to say, if land is not a commodity, labour is not purchasable either.

possible the emergence of urban economies, for only rulership and the organization and co-ordination of activities by rulers would create an infrastructure of facilities and raw material supplies, and also law-and-order, that would make possible the division of labour and occupational specialization, and the economic interdependence of households and regions on one another. We cannot ignore the role of writing and accountancy in such processes of co-ordination and administration, either.

We are concerned in this volume with three basic kinds of livelihood. Aside from (a) agriculture, there is (b) pastoralism or the breeding of herds of animals that often requires groups to be mobile for all or part of the year, and (c) hunting, gathering, scavenging, foraging, trapping, and fishing. The three are not mutually exclusive, as hunting and fishing accompanied agricultural production for millennia, and specialized herding is often made possible only by a symbiotic relationship with agriculture. Thus, although hunting-gathering is the form of livelihood of the first human groups in history, and it was only the neolithic revolution that brought agriculture and pastoralism into existence, this is no more than a general sequence; neolithic economies did not totally replace those of the old stone age. Neither does this prehistoric sequence mean that present-day hunter-gatherers are relics of the old stone age, or tribal cultivators, 'neolithic'. A simple fact may convince the reader on this point: no Indian hunter-gatherers or tribal cultivators today use flaked or ground stone tools (hand-axes, ground-stone celts, blades, etc.) in any systematic manner. Many groups through history could have been dispossesed of their homelands, forced into zones of refuge, and obliged to derive their subsistence from practices such as hunting and gathering, or agriculture in unproductive lands.

What is important for us to note is that the coming of agriculture made tribal society possible, as the ensuing papers will explain. Hunter-gatherer society is often labelled society at the 'band' level, and we shall see that this structure is not the same as the structure of the tribe. Neither can we suggest that it is pastoralists who have, through history, remained tribal, whereas the coming of agriculture has spawned a peasantry. For centuries agriculturists maintained their kinship organization, with surplus-

extracting elites coming into existence only in a few historical cases in which the tribes were transformed into a peasantry.

A word on the importance of the 'other' Indians'. Why do we need to know about them? First, economic history cannot reduce rural production to cereal output: there were also milk, hides, and meat supplies for villages and towns; and there were also forest products of a huge variety, necessary for food, medicines, fibre, fuel, crafts, etc. Second, there is the question whether groups with larger populations and greater potential for war mobilization always and inevitably dominated or exploited those with less wealth and fewer leadership roles/positions. Third, there is a delicate question: the band and the tribe do not stress the accumulation of material goods; they do not offer much scope to their members to deal with strangers; and in such structures, social roles are limited. What, then, is their potential for change and innovation? Are tribal groups today marginalized because of these inherent 'structural' features, or because they have been exploited and hemmed into limited/unproductive habitats by dominate kingdoms and empires? A few hints are afforded in the pages that follow.

Hunter-Gatherer and Early Agriculturist

Archaeological Evidence for Contact

HUNTER-GATHERER AND EARLY AGRICULTURIST

ARCHAEOLOGICAL EVIDENCE FOR CONTACT

This topic is not a new one. It has been most ably discussed by V.N. Misra, B. Allchin, and M.L.K. Murty who have handled the excavated materials, often themselves having excavated these. But I will venture into it in the context of the forum on 'Tribe to Caste' mainly because of one consuming interest: is it inevitable that hunters and gatherers would have been 'at the receiving end' through history?

This is obviously an ideologically loaded question. My own conception is that class, exploitation, and economic exchanges on the market principle are phenomena which appear at certain junctures in human history. They are not the universal and inescapable preconditions of history. This is why I am not ready to believe *a priori* that exploitation by neighbours engaged in more advanced subsistence strategies, or with a more developed social organization, was a natural condition of prehistoric hunter-gatherer existence. This question has not been raised by archaeologists and I take this opportunity to place it for discussion at a forum of historians and sociologists.

It has been an established convention in archaeology to classify sites as 'middle palaeolithic', 'late stone age', 'chalcolithic', or 'iron age'. These labels convey also implicit cultural or economic connotations. 'Late Stone Age' (LSA) sites are the remains of post-

Pleistocene hunters and gatherers, whereas 'neolithic-chalcolithic' sites have to do with simple agriculture-cum-animal-raising economies; the 'bronze age' relates to societies with occupational specialization and urbanism, and so on. There are several tacit assumptions behind this categorization. First, it is assumed that each of the forms is distinct and a contrast to the others. We believe that together these categories represent a sequence of development[1] even as they may overlap chronologically and not follow on one another in tidy progression. It is also implied that LSA sites are remnants of hunter-gatherers who were separate from contemporary neolithic tribes, these latter being again groups distinct from those who inhabited iron age towns. When we find that such entities co-exist or are contemporary (in some regions LSA and neolithic sites have overlapped for centuries) our time-honoured explanation has been to invoke the unequal development of Indian society and the characteristically Indian process of absorption, assimilation, or marginalization of bands and tribes by caste society. The occurrence at a few LSA sites of beads, or bits and pieces of pottery, or metal of chalcolithic or iron age provenience is ascribed to 'contacts' between two or more kinds of groups, or the 'influence' on hunter-gatherers of technically advanced villagers, or the 'blending' of LSA and iron age elements.[2]

I do not set out to invalidate this perspective, but to suggest a possible additional dimension. Having spelled out the assumptions, we will first search for possible patterns in the exotic artefacts at LSA sites, in order to explore whether any such pattern can provide a basis for examining the nature of contacts. Were prehistoric hunter-gatherers, like those of recent times, subjected to unequal exchange, or to dependance on or the dominance of more advanced communities? Did the one subsistence form retreat before others? Can we assume that with geographic proximity, 'contact' would have been inevitable? There is also the debate whether hunter-gatherer groups/cultures are survivals from the prehistoric past. If survival in some sense is a reasonable inference, we must ask what there is in this kind of social organization which enabled survival in spite of contact.

Microlithic tools, animal bones, plus bone tools with the occasional bone anvil, ring stones, hammers, discoids or choppers, sometimes patches of living floors, and sometimes burials, are the kinds of routinely found remains of LSA or mesolithic sites in South Asia. Such sites have been located all over South Asia except in certain zones below or along the lower Himalayan slopes. At a small number of them, 'extraneous' elements have been found that are not expected to form part and parcel of hunter-gatherer material culture.[3]

Of the latter kind of LSA sites, several lie in the North Vindhyan plateau between the Tons and Son, plus in a region roughly between Bhopal, Raisen, and Hoshangabad in eastern Malwa, with a few across the Narmada in the Pachmarhi Hills.[4] A more restricted cluster lies in the vicinity of Nandyal town, Andhra Pradesh, on the eastern slopes of the Erramala hills overlooking the north-to-south flowing Kunderu.[5] Other sites are Marve, Khandivli, etc., around Bombay; Langhnaj in the sandy north Gujarat plains; Tilwara in district Barmer in arid Rajasthan west of the Aravallis; Bagor in the less arid Rajasthan of the Banas system east of the Aravallis; and the Durgada rock shelter near Maski in the gold bearing tract of the Raichur doab (Karnataka). There are probably other 'LSA contact sites', that I have missed.

What kinds of extraneous artefacts or other items do these sites yield? trinkets, utilitarian things, or prestige/ceremonial items? An exotic category that occurs ubiquitously at our sites, rock shelters as well as open air camps, is *pottery*. The potsherds from Langhnaj

(extremely small in size) and Tilwara have no provenience as yet, but on the Vindhyan plateau LSA sites there is burnished red or cord-impressed ware as used in the neolithic sites of the Belan valley or at neolithic Kunjhun (the 'Vindhyan neolithic') on the Son; near Bhopal and Raisen the 'foreign' pottery in the rock shelters is chalcolithic Black-and-Red ware (plus in one case, with a burial, Malwa ware)[6] and occasional sherds of NBP, the glossy *de luxe* ware of the iron age Ganga plains; at Bagor II the pottery is apparently Ahar and Kayatha wares (chalcolithic) followed, in later levels (III), by iron age pottery.[7] In the Erramala rock shelters and open air sites the pottery is identical with that used at about ten neolithic-chalcolithic settlements of the adjacent Kunderu valley. And in the Durgada hill shelter, the pottery found with microliths was iron age Black-and-Red ware and also burnished grey medieval pottery, most likely from the village of Maski nearby.

Metal is not quite as common. A pure *copper* hammered arrowhead and a long knife (both with few parallels elsewhere) occur at Langhnaj, and from Bagor II came a copper/bronze awl, spearhead, and three swallow-tail arrowheads, the latter of Harappan shape but each with two perforations. At Muchchatla Chintamanu Gavi II in the Erramala hills were found a copper/bronze bead, a bangle fragment, and a kohl stick. At the other named LSA sites (plus the upper levels at Langhnaj and Bagor), except for Baghor, Lekhahia and Ghagharia in the north Vindhya region, and the Bombay sites, it is *iron*, fragments or arrowheads.

Third, *bones of domesticated animals* occurred at Adamgarh, some of the Bhopal-Raisen rock shelters, Tilwara, all levels of Bagor,[8] and at Muchchatla Chintamanu Gavi (henceforth MCG) II. We find small numbers of *stone beads*, occasionally unfinished ones, at Bagor, Ghagharia, and Adamgarh, and fragments of *glass* (iron age) at Adamgarh and the Bombay sites. There is a single dentalium shell bead from Langhnaj. Finally, *ground stone axes* occur at the Andhra sites and at Langhaj.

Some of these items will be discussed later. For the moment we note that several organic and perishable extraneous items may also have been present at the LSA sites, for which there is no archaeological record, but this apart, the above do not constitute a wide range of items. There is utilitarian metal, meat/livestock, pottery; copper bangles and NBP pottery may have carried aesthetic value as well; but possibly only beads may be called trinkets. And there appear to be no high status ceremonial gift items such as those of Harappan authorship that we find at the sites of simple farming groups outside Harappan territory, e.g., Burzahom in Kashmir or Kayatha in Malwa.

Why have so few of the hundreds of mesolithic sites in South India produced evidence for contacts? Is there a locational correlation? Certainly the Durgada cave, the Erramala sites, and Baghor and Ghagharia of the north Vindhyas, lie in close proximity respectively to Maski, the Ramapuram group of neolithic villages of the Kunderu system, and the Belan and Son valley neolithic sites. Meanwhile, as emphasized by Jacobson, the Malwa region and the Vindhyan escarpment south of Mirzapur are crossed by major natural highways and must have seen much traffic: villagers, pilgrims, pastoralists, and merchants, and were also the refuge of ascetics. But we do not know the agricultural neighbours of the people of Tilwara. And it would not do to cite proximity as *cause* of interactions, unless we were able to demonstrate the occurrence of the latter in every case of LSA and neolithic site proximity (when the two sets were in chronological contemporaneity) and vice versa. We may also note that habitation at Maski began in the chalcolithic period, but that there is no chalcolithic pottery in the nearby shelter of Durgada, only pottery of the later periods.

As summarized earlier (see note 1), hunter-gatherer or band level society is marked by its small scale and the mobility of its members. In southern Africa people are known to walk up to 10 km from their camp to gather nuts and between 10 and 16 km to stalk big game. The usual camp has a population of about 25.

Group membership is always in flux even as camps shift through the seasons. Therefore territoriality in the sense we know it, with one group claiming a region bounded in the north by this range or in the west by that river, is not important. The terrain of each individual differs from that of other members because of the fluid composition of camps. Additionally, it is not possible to predict where abundance will occur today, or scarcity, tomorrow. It has, finally, been noticed that outsiders, provided they announce themselves, are as a rule granted access to hunter-gatherer lands and their resources.[9]

We therefore expect some degree of interdigitation of the terrain of hunter-gatherers into that of pastoralists and agriculturists, rather than a geographic or sub-regional separation. And it has long been argued that, except in regions like Australia, hunter-gatherer bands have had contact with other peoples for centuries.[10]

We expect such contact to have had a material aspect. Many cases have been documented of exchanges prevailing between hunter-gatherers and their neighbours for long periods of time. For instance the Bukat of Borneo gave cane and fibre craft items, poison, and poisoned arrows, animal skins, honey, etc., in return for things like salt, tobacco, iron objects, cloth, and glass beads.[11] In Kerala the Kadar of the mountain forests for many generations trapped elephants, gathered honey, and plucked cardamom to take down to the court of Cochin in the plains. In the early nineteenth century there were three barter stations in the lowlands where the Kadar obtained iron knives, salt, and sometimes pottery, for their wares.[12]

Similarly the Malapantaram were important vassals of a small kingdom for which they collected honey, resins, beeswax, and cardamom, sources of substantial state revenues.[13]

The available ethnographic literature appears to indicate that on the whole such exchanges were conducted in the vicinity of villages rather than at forest camps. The reason could be that the range of hunting and collecting is wide, and hunter-gatherers are the more mobile people. Also, in certain circumstances they are attracted to villages where they have seen craft items like pottery, or ornaments, or metal tools. The village may also be chosen as a locus of dispute settlement—it may be better, Moore points out, to settle a dispute than pack up and move away, and in this sense agriculturists are a 'social resource' for bands.[14] Even as particular hunter-gatherers have been known to flee in panic at the approach of strangers (when they were afraid of being captured for slavery), even as mobility could have been a strategy to avoid exploitation, in some situations life may have been easier in the vicinity of agricultural clearings, and preying on agricultural settlements (stealing, begging), sometimes was an alternative to foraging or hunting.[15]

It is also known, however, that there can be no contact, neither exchange, theft, nor raid. Agricultural colonization, as also new diseases carried by the former, may push bands into retreat.[16] And then it is interesting that, of all early food producing settlement sites known to us, very few locate at the same site as a previous/earlier LSA settlement. Among these very few (to my knowledge) are neolithic-chalcolithic Sangankallu (Bellary district, Karnataka), Palavoy (Anantapur district to the east of the latter, on the river Penner), and Nagarjunakonda; chalcolithic Kuchai in Mayurbhanj district; Harappan Rangpur in eastern Kathiawad; iron age Jalahalli near Bangalore, etc. It needs to be emphasized that in each of these

cases there is a hiatus in occupation (a sterile layer) separating the LSA remains from the later occupation. At Ratanpura on the lower Rupen in the north Gujarat plain, shallow layers of chalcolithic and LSA material were found in different sectors of the 'mound'—a case of 'interdigitation' in the most literal sense! Thus the prehistoric and protohistoric evidence does not support any idea that, in the third to first millennia BC, hunting and gathering retreated before agriculture. In fact at a site excavated by Mehta and Momin on the fringes of Lake Kanewal north of Khambat in Gujarat, post-Harappan chalcolithic occupation was found in one place and, about a kilometer away, similar remains of chalcolithic huts were sealed by layers containing LSA flaked stone material. Mehta remarks on co-existence but also suggests that LSA occupation could have continued in the face of chalcolithic village abandonment.

Scholars have also observed that in Asia there are very few early farming settlements like Jericho where defensive structures occur.[17] Second, while intricate and controlled techniques of stone flaking were used not only by prehistoric hunters and gatherers but also by neolithic-chalcolithic and bronze age groups (albeit with different tool kits), it has also been worked out that geometric microliths, points and barbs, representing the use of the bow and arrow, are proportionately few at neolithic-chalcolithic sites compared with LSA sites.[18]

There is also the point that the warlike and ferocious nature of hunter-gatherers is more a fiction than fact. Sellato, for instance, points out that while the Bukat of Borneo are known to have struggled to protect their lands and to have harassed encroaching farmers, and were reputed to be ferocious, in actuality they have never been warriors. They do not wage battles—they can only harass, make night raids on an isolated village, or ambush intruders. In any case such societies are intrinsically fragmented into small

and fluid groups dispersed over the terrain, and it would not be easy for them to mobilize for 'war'.[19] The Seligmanns quote a seventeenth-century account of a Sinhalese king getting the Veddah to fight for him with their bows and arrows— the latter dispersed into the forest when the fighting was over so that they 'could be seen no more'.[20] For the moment, therefore, we will rule out the possibility of armed confrontations between prehistoric bands and agricultural tribes.

Let us revert to the occurrence of iron fragments or arrowheads at mesolithic sites. It has been stated[21] that exchanges would have intensified in the iron age because of the superiority of iron over stone as a raw material, and the skills of flaking tools would have been lost with increasing reliance on iron. Certainly, at one site after another, it has been documented that as a stratigraphic progression occurs from neolithic through to iron age levels, flaked stone tools decline in number. (We can also recall that pottery as used in the village of Maski is not known in the nearby cave site until and after the iron age). It is further assumed that because of growing dependence of iron, bands in their turn intensified their procurement of particular items like skins or meat or honey, to give in exchange for iron.

Yet in the Putli Karar rock shelter cluster there occur ceramic crucibles for iron carburization, pieces of haematite and limonite (ores), and chunks of slag.[22] Had hunter-gatherers, then, learned the technology of iron production? I am reminded of a brief but touching description by Ehrenfels[23] of the valiant attempts of a Kadar man to master iron working—the heating, use of bamboo tuyeres, hammering, and so on. And it is recorded that the Veddahs were very particular about the kind of iron arrows they required: even if a ruler bestowed on them a number of good quality ones, they could take them away and re-shape them to their needs.[24]

The point that needs to be emphasized is the extreme flexibility of hunter-gatherer economy and society. Resources are varied,[25] the techniques for procuring them are multiple and diverse, camps move and lose and acquire members. Thus Ingold:

> ...the same local group can switch with ease and spontaneity from one pattern of work to another as the situation demands. This organizational flexibility has repeatedly been shown to be of the essence [of this mode of subsistence]. The band is a kind of society organized to execute the entire mode...[It] is not constituted to implement this or that technical form of labour, but to allow the concurrent implementation of a range of forms.[26]

We had seen that the Kadar (a) obtained iron knives from plainsmen in exchange for forest produce, that (b) at one point of time at least one of them was endeavouring to master iron technology. It is also the case, however, that (c) in spite of long experience with iron knives, the Kadar can make do very well without them, sometimes for years at a stretch.[27] So do the hunter-gatherers of Borneo, reports Sellato,[28] live contentedly for years without salt or iron.

Let us now consider the evidence at the protohistoric farming settlements. In the Kunderu valley, neolithic Ramapuram has yielded bones of chital, blackbuck, sambar, and chinkara. Murty suggests it was not the villagers who went out hunting: his strongest argument is that in lower levels at the site microlithic projectile points for hunting may occur, but not so in the upper levels, although bones of these game animals continue to occur.[29] (In the case of chalcolithic Ahar, only about six blade tools have been found even though LSA Bagor was only about eighty km distant.[30] Sankalia,[31] however, seems to have believed that wild animals whose meat was eaten are also under-represented in the assemblage.) Allchin and Allchin[32] too found that lunates or geometric microliths (points and

barbs) that were the main tools for hunting and fishing (points and projectiles) form a heavy proportion of tools at LSA sites but not at neolithic-chalcolithic sites (where it is usually blade tools, knives, sickles, etc., which predominate). However, at chalcolithic Inamgaon near Pune we find that, as far as the evidence permits us to correlate the findspots of flaked stone material with particular houses, tool preparation (except the initial preparation of cores which produces debitage of crested-guiding-ridge flakes) was done in the village: unfinished pieces and waste flakes occur, fluted cores are found in several houses, and one house has an exceptional number of lunates.[33] Therefore it is not possible to generalize that stone tools made with special flaking skills, or half-finished cores, or raw material, were supplied by hunter-gatherers to villagers. The same applies to the procurement of meat and game by villagers. We can therefore only reiterate that even from the point of view of protohistoric villages, 'symbiosis' was not inevitable. And it may be pointed out that for South Asia we do not know whether animal symbolism and man-animal relationships (and hence the relative importance of hunting and meat) underwent radical change with the advent of animal domestication.

While it is likely that such interactions as did occur at the villages, Murty as well as Jacobson suggest another alternative: that it was protohistoric villagers who went up the hills in their neighbourhood to graze their animals in the dry season and, qua Jacobson, to hunt. This is given some weight by the find of a burial in mesolithic habitation levels in a cave in the Malwa region, where Malwa and chalcolithic Black-and-Red pottery have been interred with the dead.[34]

So far we have not found evidence of marked territoriality amongst hunter-gatherers, or of confrontation, or of hunters being overrun by agriculturist colonizers. We have also found that there

may be neither archaeological evidence nor logical necessity for the prevalence of exchanges. Perhaps Possehl and Kennedy insist too much on exchange between the Harappans at Lothal and the hunters of Langhnaj, about 100 km distant. True, the single dentalium shell found at the latter reminds us that this shell, from the coastal waters of Saurashtra and the Gulf of Cambay, also occurs at Harappan Rangpur, Lothal, Nageshwar, and Harappa itself. But the pottery at Langhnaj is, according to the excavators, crude and badly fired and the long copper knife cited as evidence for exchange by Possehl and Kennedy was, according to Sankalia, without parallel. And from what was said above it appears unlikely that a Harappan manufacturing town would have relied on hunters and gatherers for the procurement of its craft materials.

Going by what we have inferred above, there is also very little basis for any view that the marginalization of hunter-gatherers, making them the peripheral adjuncts of village society, is as old as village society. We cannot project modern venality into the most ancient past when there was no commerce in timber, no guns, no population and taxation pressures, and no modern roads.[35] In 1944 Verrier Elwin had observed that it was those groups who were the most decimated in number, the most cringing, the most uncaring about their own myths and traditions, and the most impoverished, who happened to inhabit a tract crossed by a modern highway, or had lost their ancestral land, or whose ancient food procurement practices had been outlawed by the British. Naik writes about the Bhils that their cruel oppression began only with Maratha rule.[36] It was only in modern times that private merchants and state agents competed for the forest trade and deliberately created needs for tobacco or alcohol amongst hunters, or tied them into indebtedness.[37]

In modern times the Kadar tuber diet, customs, and dress were things the plainsmen of Cochin mocked. Yet there are memories of a time when the Kadar had a special attachment, as loyal vassals, to the Rajas of Cochin, receiving gifts and annual distributions (to each individual or household) of set quantities of clothes, arrack, sopari and pan, rice, tobacco, and cooking oil.[38] Further, it is well known that Bhils participated in the inaugurations of some Rajput Rajas. (We have parallels also from the Kuba state, from Rwanda, and from Ethiopia, where hunter-gatherers, even though socially despised, were acknowledged as the original inhabitants, and granted special privileges such as the right to carry the ruler's chair, as well as recognition as the inventors of fire, or as teachers or healers).[39] A colourful narrative also describes the meeting of King Harsa (seventh century) with a youth from a leading Shabara family of the Vindhyan forest, who makes obeisance and gifts to Harsa, but is obviously respected as the guide who 'knows every leaf in the Vindhyan forest'.[40]

It remains for us to discuss the evidence for acculturation, the most tangible of which, as cited by Desmond Clarke, is that (a) flaking techniques improve at LSA sites in those levels where contact is evidenced and (b) that LSA bands apparently acquired skills for stone bead making because at Adamgarh, Ghagharia and Bagor there are not only beads but at least single instances of unfinished ones. This too reminds us of hunter-gatherer flexibility in changing food habits or exchange patterns or exchange partners, as emphasized by ethnographers.[41]

There is an additional matter. Ground stone axes have been found at Langhnaj (where they were not well made) and near LSA camp sites in Andhra Pradesh in the Erramala range. Was this because, as suggested by Murty, village herds and fields were extended up into the hills? This artefact category is understood to

be the prime tool for land clearance and tillage. It may also be that cave dwellers were gradually becoming exposed to, or familiar with, tillage (as also animal herding, considering the finds of bones of cattle, sheep and goat at the hill sites). Murty cites the myth of the forest hunter girl and her absorption into the pantheon around Narasimha, in this region, as an important symbol of the process of incorporation. Moreover, the MCG II site appears to have been a long or frequently-occupied camp or home base. '...frequency of re-use is an index or a measure of sedentarization'.[42]

What, then, of the perennial problem regarding hunter-gatherer 'survival'? Do the bands of today represent survivals of prehistoric culture systems, as inferred by Ehrenfels, Nagar or Misra? Or should we accept the argument of Fox, that fundamental social changes have occurred because of hunter-gatherer engagement in exchanges with the outside world? According to Fox this brought about a kind of specialization: instead of exploiting a whole spectrum of plant and animal species, hunters and gatherers began to concentrate on a few items for exchange with others, or on making basketry or other crafts, or on providing services such as acting as guides. Thereby, the logic goes, they lost their self-sufficiency. Also, the family became the unit of production and consumption, in competition (rather than mutual sharing) with other families. That is to say, there has been a kind of fragmentation.[43] The starting premise in the argument is that originally bands were united as units of co-operation, sharing, and also consumption. I wonder if this is a justified premise. Where evidence occurs for post-pleistocene habitations/shelters of upper palaeolithic and mesolithic periods, we do not seem to find facilities where a 'band' of say several families is cooking and eating together. The placement of living floors, stone flaking loci, and cooking hearths vis-à-vis one another at sites like Kostienki I on the Don or

Meer in Belgium or Mt. Sandel in Ireland indicate that many families may have camped together, but that 'it was members of primary family groups who warmed themselves and cooked by these individual fireplaces'.[44] And the finds of several bird plus 16 animal species in the Andhra cave sites and about half a dozen hunted animal species (together with domesticated cattle, sheep, goat, pig and buffalo) at Adamgarh[45] do not point to specialization. The marked change in hunter-gatherer history that remains unexplained is the loss of the various methods of stone flaking and retouching known to prehistoric peoples.

Earlier we had remarked that amongst the extraneous artefacts at LSA sites there are few which can be easily interpreted as prestige items or status markers. I think this has a structural significance, to which Sellato points us.[46] We cannot expect hunter-gatherers to have made great effort to procure such things. When the Bukat of Borneo were presented gongs or copper artefacts by agriculturists, Sellato says, they just cached them away in caves or below the forest floor because they were not convenient to carry around in repeated shifts of camp. They were actually used only in marriage prestations (when a Bukat married a village girl) or as blood compensation. It is thus hard to imagine that any flow of gifts or ceremonial items would bring about role change as they are known to do in tribal society with its clearly recognizable descent groupings and its apportioning of people to the land.

As Bird-David has shown, band society adapts to trade, and social fragmentation is not a necessary outcome. Individuals exercise the option of whether to trade with outsiders or not, and may change trade partners. Bird-David shows that in bands kinship relations are not burdened with claims and obligations, and kinship does not involve lifelong commitments between individuals—as

stated elsewhere in another context, there are 'no load-bearing relationships'.

And so it is not terribly surprising that the dates for the occupation of Bagor span almost five millennia: 5000–2800 BC for period I, then 2800-600 BC for period II, and 600 BC–AD 200 for the last period. Flexibility, as explained by Ingold, Sellato, and Bird-David, must have been the key.

Perhaps there is also another dimension, the flexibility of access to resources in the ancient past. Forests must have been not only the sources of pepper, cardamom, cinnamon, ivory, and honey, but also a vital resource base for agricultural villages, the locus of timber, fuel, wild fruit, medicinal plants, game, pasture, and so on.[47] One would not dare suggest that Bana's *Harsacharita* represents a typical or unvarying situation, but this seventh-century description of the forests of the Vindhyas, exuberant and ornately written as it is, cannot fail to impress us about the ready accessibility of forests to the world around. There are agricultural pockets surrounding the forest, with agricultural clearings inside. Fowlers roam as do hunters with their intricate traps. We find in it cow pens as well as iron smelting and charcoal making, as also hermitages. Moreover, villagers of the region help themselves to its timber, bark, flax and hemp, flowers, honey, peacock feathers, wax, and fruit.[48]

At this stage it is not far fetched to refer to Hall's challenge to the ages and stages paradigm of prehistory: the assumption that different archaeological entities represent separate peoples. Hall shows that in southern Africa archaeological assemblages do not neatly fall into 'food collector' and 'agriculturist' categories, for example. Agriculturists hunted and collected wild seeds; foragers burned patches of forest to encourage certain regrowths; iron-age agriculturists used some stone tools whereas hunters used some iron tools and pottery. We have seen that the archaeological evidence

in South Asia shows a similar kind of patchy mixture. So a viable alternative to the 'marginalization' or 'inevitability of exchange' paradigms may be to explore Hall's suggestion and ask whether, for the early centuries following on the introduction of agriculture and metal, we are dealing not with separate sets of representative cultures and their 'peoples', but with an all-encompassing mode of production. In that case the concept of 'survivals' will take on a different complexion. We will not be asking whether 'the Kadar' as studied in 1950 have been forest hunter-gatherers since 10,000 BC. We will give greater attention to groups like the Bhils, dispersed over a large area of western India, who have been hunters, bands of archers controlling small tracts, growers of small millets in shifting forest plots, (today) users of the plough, and makers of bamboo containers and more than a dozen kinds of basket.

But this is not the essential point I have been making. What is perhaps more important is the absence of marked territorial boundaries of hunter-gatherers, the open-ended situation where contacts and exchanges are concerned, and most important, the flexibility of the social form as well as, seemingly, of patterns of resource use in early times.

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Notes

[1] The prehistoric and early historic sequence is identified as bands (hunter-gatherers), tribes, chiefdoms, and states (with or without urbanism). This scheme has empirical reality in that where complete, the sequence is the same; nowhere in the world have groups initially formed states and then developed into hunter-gatherers. More important, each stage contained the potential for the development of the subsequent stage.

Bands are to be distinguished from tribes (food producers engaged in agriculture and/or pastoralism), even though in our country, because of the

influence of early British anthropology, there has been a tendency to label all 'primitive' groups outside the mainstream caste system as 'tribals' [sic].

In band society kinship is not the relations of production. Lineages are not of marked importance, nor common ancestors, nor the association of descent groups with particular lands, which they 'own' jointly down the generations. In fact, amongst most hunter-gatherers the nuclear family may be the only permanently constituted group. The family is the unit of production (collection, fishing, foraging) and consumption, except where hunting is concerned. The hunting of large game, where it requires a team, is done by groups who come together on an ad hoc basis for a particular hunt. Thus camps repeatedly shift in adjustment to the availability of food resources (which are characteristically very diverse) and, in the absence of institutionalized chiefships or deference to age/seniority, as a conflict-adjustment mechanism. The minimal social ties and solidarities that join families are expressed by the sharing of the kill, totems, and names, and sharing in the resources and spirits of the land.

[2] Misra, 1964 & 1976; Jacobson 1975 & 1978; Allchin and Allchin 1974 & 1982, 62 ff. & 89; Joshi and Khare; Clark; Clark and Williams. Murty's is the more innovative approach.

[3] See the above as well as B. Allchin, 80 ff. & 186 ff.; B.K. Thapar, Sankalia et al.

[4] There are rock shelters and open air sites like Morhana Pahar and Baghai Khor near Mirzapur north of the Son; Lekhahia southwest of Mirzapur; Ghagharia near Sidhi; Baghor further up the Son and to its west; ten groups of rock shelters and 51 open air sites including the Putli Karar rock shelter near Bhopal-Raisen; Adamgarh near Hoshangabad; and rock shelters near Pachmarhi in the Mahadeo Hills south of the Narmada.

[5] Billa Surgam, Muchchatta Chintamanu Gavi I and II, Golagutta, Pedda Pavuralla Badde Gavi, Veldurti, Betamcheria, Ramallakota, and perhaps others. At these sites upper palaeolithic assemblages are overlain with LSA material. See Murty, 192-98.

[6] Misra, 1976, 119. This is a cave burial near Raisen.

[7] Kayatha is a chalcolithic site east of Ujjain, where 'Kayatha' pottery is stratified below Ahar chalcolithic ware. Actually there are about 50 'Kayatha culture' (2000-1800 B.C.) sites along the upper Chambal and its western Malwa tributaries, the Sipra and Kali Sind. Bagor's Kayatha connections are significant. We will see that Bagor produced three metal arrowheads that seem to be Harappan in origin. At Kayatha (Dhavalikar, 233) were found caches of beads which appear to be Harappan in origin/inspiration—all in one restricted portion of the mound, probably one house. So there are slender threads linking the great urban

civilization with small tribal villages as well as camps of hunter-gatherers, well outside the Harappan occupied zone.

[8] It is now being said that the bones at Bagor are those of wild ungulates and not sheep/goat (personal communication, Richard Meadow).

[9] Perlman, 37-38; Ingold, 1986, 136-157 & 177. Hunter-gatherer mobility is due as much to the seasonal availability of resources as to the social and political imperatives to change residence neighbours and 'rearrange' relationships with co-members.

[10] Headland and Reid; Fox; Morris, 1977. Also Cooper shows that the Andamanese were not isolated but were known to the outside world since ancient times and in their turn had by some unknown means acquired certain ceramic and boat-building techniques.

[11] Sellato, 73.

[12] Ehrenfels, 11,17,47.

[13] Morris, 1977 & 1982.

[14] Dennel; Sellato, 75,203; Moore, 107 ff.

[15] Sandbukt, 110-13.

[16] Dennell.

[17] Dennell, 118.

[18] Allchin and Allchin, 1974. That such points were used as projectile weapons is confirmed by a burial at mesolithic Sarai Nahar Rai in the north Ganga plain where a point is embedded in a rib of a skeleton (see Allchin and Allchin, 1982, 75-77).

[19] Sellato, 67-62, 179-81.

[20] Seligmann and Seligmann, 7.

[21] Allchin and Allchin, 1974, 48; 1982, 89; Misra, 1976, 121.

[22] Jacobson, 1975, 82, 88.

[23] Ehrenfels, 53, 114.

[24] Seligmann and Seligmann, 6-7.

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Our Tribal Past

Bhupendra Yadav

OUR TRIBAL PAST

It is a privilege to speak for the Champa Foundation at a function that celebrates the lives of Amiya and B G Rao and their fifty years together in pursuit of the values that they set for themselves and nurtured, regardless of their place within or outside the official scheme of things. In the last few months,[1] the tribal people of the Narmada valley have had to face the bitter reality of the Supreme Court judgement; new states have been added to the Union to be managed, it appears in one case, by not tribespeople but multinationals and consultants' firms from Boston; I have chanced on the unthinkable degradation of Bhil women being subjected to trial by ordeal; and a spate of horrors has yet again been perpetrated on persons of the De-Notified and Nomadic Tribes in Maharashtra.

This paper is on tribes as a kind of society, and the glimpses of tribal life and its origins that the archaeological remains of very early periods can afford. Although prehistoric tribes must remain anonymous, archaeologists can discuss these early societies without reference to caste, peasantry, or mainstream civilization—the latter had not yet taken their shape. I will thus argue that the tribe has a reality in its own right and not as a creation of states, or something acquiring its identity from without, as 'not this' or 'not that'.

The notion of the 'tribe' is clouded with uncertainty today. Some people who are zealous about political correctness see the

term as pejorative, implying backwardness. Some believe that tribalism is an invention of British colonial rule.[2] Some find little difference between tribes and castes, or between tribal people and peasants. Academics, activists, state agencies, well-meaning postmodernists in the West, and academics, it appears to me, have contributed to major misunderstandings that have been carried over into education materials and popular perceptions.

The focus in this paper is tribalism as a level of social organization that pre-dates stratified class society. Tribes are characterized not by this or that race, habitat, or religious practice, but (in my understanding) by the bonding fabric of kinship and the joint ownership of the natural resources from which they make their living. Jointly held resources comprise agricultural land, wells, forest trees and game, river water, river fish, etc. There is no private property in these. Simply put, among the Meenas of Rajasthan it is the *thok* or patriline that owns agricultural fields, not individuals or even families. Bhilala villages in the hills flanking the Narmada valley are organic communities in that members have direct access to land, all members of the local lineage enjoying this right; they are united by kinship (common descent); and, with minimal occupational specialization, are in many ways self-sufficient.[3] Among the Pathans, jointly owned land is periodically re-allotted to members, so that groups of families may shift to new lands, and the institution is known as *wesh*.[4] Associated as it is with the ancestors, jointly held tribal land is, instead of a commodity, inalienable and all members by birth have rights to a share. Title to such land is a matter of prestige, not just a source of livelihood. A group that holds joint title to a tract exercises its sovereignty.[5] Today, few tribes occupy coherent areas, speak their own language, or participate in a homogeneous economic structure, material culture, or set of social practices. Since the colonial period (if not earlier),

with states recognising individual ownership rather than lineage tenure of land, the fabric of kinship has been torn; tribal people have become individual owners or tenants, often indebted to landlords and money-lenders. Forest legislation has deprived many tribes of a traditional livelihood. Large-scale displacement in favour of tea plantations or irrigation projects has caused the fragmentation of groups, and scores of tribal languages have, in the last century or so, been obliterated. Sometimes only adherence to an ethnic identity survives. But this does not mean that in the social sciences the category of tribal society has to be junked.

Kinship bonds and joint tenure are logically interrelated. It is in the ideology of descent of all members from a common ancestor that closeness is expressed, and the morality of kinship makes it feasible to hold resources as a collective. Sometimes it is mutual aid in field labour (ploughing and sowing), such as the *lah* tradition of the Bhils, that is important: kinsmen take their ploughs and oxen to help one another, the host feeds his helpers, and is aware that in his turn and at the appropriate time he owes labour to others.[6] In short, kinship is the relations of production.

Belief in descent from a common ancestor does not mean that tribes can be identified genetically, as our British rulers were prone to think. Common ancestry can be real or fictive. It means that no member is deprived of access to his/her group's resources, which were tended by the ancestors and have deep ancestral associations. And no member can dispose of these resources for private gain, or pump out water so that neighbours' wells run low. Individual rights are, as B.K.Roy Burman put it, 'embedded within communal rights'. In addition, as L.K. Mahapatra writes, the rules of joint ownership while not recorded in writing are known to all members of the group, and are recognized as legitimate. Such rules are not necessarily unvarying—rights of usage may be granted to

neighbours.[7] Within the structure of kinship and communal tenure, social interactions are marked by relations of duties/obligations, respect/command, or senior/junior. (The bonds of kinship do not, however, confer equality on all members, as Xaxa states.[8])

Not all tribespeople could ever be equal in industriousness, perseverence, ability, or social skills, and some are bound to be wealthier than others. But neither this nor distinctions between members on the basis of age or gender by itself makes for hierarchy or class divisions. The owner of the largest herd of cattle in a tribe would still have to adhere to existing norms of usage of pasture; so would any tribal chief. Success in agriculture does not give a tribal family special rights over the labour of others. Like others, chiefs provide food for those who labour for them. Thus there are no ruling elites, no states,[9] no surplus extraction, no formally constituted institutions of dispute resolution.

Should we call our forest dwellers—or any other rural group—indigenous people (the twentieth-century term is *adivasi*)? I would say that to claim that the Aryan immigration of the second millennium BC was a watershed that divides indigenes from colonizers is fraught with problems. In no way can we prove, for example, that the Mahars are the aboriginal settlers of Maharashtra. There has not been uninterrupted settlement at the same villages since prehistoric times in any part of the country. Instead, we have archaeological evidence for abandonments of not only villages but entire regions; there would have been migrations and the colonization of new lands through the ages. Second, claims that forest dwellers are indigenous to their area disregard the fact that ethnic identities change over periods of time, and often imply that the forest dwellers have not changed since the stone ages—and that may be more pejorative than the nomenclature 'tribe'. (Of course the fact that the previous government had given up the term *adivasi* and opted, for obvious reasons, for the term *vanavasi*, has little to do with archaeological or historical research.)

That there is no marked visible or structural distinction between tribespeople and peasants, as both struggle at the subsistence level, with household production, is true, but this applies to the ground realities of the present period. Peasants by definition live in a larger world dominated by urban centres and surplus-extracting elites, but not so tribal society.

When the concept of tribe is dismissed as a colonial construct, a pejorative with connotations of backwardness, the reason may be confusion arising from the state's definition of its Schedule of Tribes. This is often mistakenly read as the official definition of what is a tribe.[10] Just as, to be included in the Schedule of Castes, a caste must have suffered untouchability and 'its resultant disabilities', so too, the Commission on SCs and STs says a group is included in the Schedule of Tribes if it has tribal origins, a 'primitive' way of life, habitation in remote and inaccessible areas, and is 'generally backward in all respects'.[11] By these criteria the state was creating an administrative category, a category of inclusion of groups in need of positive discrimination and protection.[12] It was not defining tribal society! Thus those who identified themselves as Hindus in the Census of 1931 were excluded from the Schedule of 1956, even though it was known that they were tribal. In fact in the 1901 and 1911 Censuses, tribes were distinguished as groups with common descent from a real or fictive ancestor and united by kinship, occupying a contiguous area, and not necessarily endogamous or associated with a specific occupation. (Caste, in contrast, was then understood as groupings marked by occupational specificity, endogamy, and commensality.)

Certainly state intervention has a shadowed history that may go back to the beginnings of the nineteenth century, when the

British were unnerved by the ferocity of the armed rebellions of tribal forest dwellers, in contrast to the docile middle classes. Perhaps that is why tribes were viewed from the start as a law-and-order problem, as 'wild' and 'primitive'. Indian administration has taken note also of the fact of the separation of tribes from mainstream society. Far from being a function of some imagined necessary habitat in remote forests,[13] separation is probably logically connected with an egalitarian social structure and ideology. In Satish Saberwal's dictum[14] (in the tradition of Dumont), it is only hierarchical societies that can organize themselves when social differences exist.[15] Romila Thapar finds embedded in the *Ramayana* story a contrast between the kingdom based on agrarian wealth, with its cities, craftsmen, horses, and kingship on the one hand, and life in the forest, without fields or castes, merchants or craftsmen. She suggests that the latter represents tribal life. With migration, colonization, and the inexorable advance of agriculture and the agrarian economy, it is the kingdom that triumphs, together with the values for which it stands.[16]

However, just as the criteria for inclusion in the Schedule have been mistaken by scholars as the state's definition of tribal society, so too this separate existence has been misread as life in isolation. Devy points out that scholars have for long failed to realize that today's tribal population in India is 'basically bilingual' and consequently assimilates external influences even while developing mechanisms of response to the outside world.[17] Decades earlier, Elwin had remarked on the tradition of commemorating carved wooden pillars to the dead, that has spread across central India. Elwin's description of the tradition of painting house walls among the Saoras of the Eastern Ghats (Orissa) [18] has striking parallels with the 'Pithora painting' tradition amongst the Rathwa Bhils of Baroda district, observed today. In both areas, the occasions that

call for painting are similar, the execution of figures is referred to as 'writing', and painting accompanies shamanistic ritual. It is the painting styles, the aesthetic, and the pigments used, that differ.

B.K.Roy Burman stresses that it is the 'structural distance from the main body of the people of the country' that has enabled many tribes to remain unassimilated.[19] The point is neither isolation nor backwardness, but tribes not being politically obliterated even as they were open to the influence of technologies or cult practices from the mainstream, or indeed influencing the cults of the latter. Deliege[20] comments on the vastness of the category 'Bhil', lacking a single language, material culture, or origin myth to give it unity. He suggests that what is important is that being Bhil sets people apart from caste society and peasantry: whether it is the Vindhyas or the Satpuras, he finds, Bhils have reacted and related to peasant society in the same way. It is their independence and separateness, even under Rajput state authority, that counts. The legend of the *tilak* made by a Bhil elder on the forehead of a Rajput at the time of coronation may not have been the literal truth, but appears, he says, to underline Bhil independence or autonomy under Rajput rule. (Nandini Sinha found that the inscriptions of the Guhilas of Mewar do not corroborate the relationship symbolized by the *tilak* legend. But Bhils were co-opted by the early medieval state of Mewar as warriors, mine labour, charcoal producers, and guardians of the forest paths, and the absorption of deities like Vindhyavasini in the royal pantheon of Mewar may be symbolic of the role of Bhil-Guhila interaction in the process of state formation.[21]) For her part Baviskar refers to basic differences between Bhil and Hindu beliefs, the economic self-sufficiency of Bhil villages, and the persistence of bride-price. [22] Most important, while Bhils emulated some Rajput customs and accepted some Hindu values, they did not accept the

Brahmin as superior, and did not opt for Brahmanical rituals.[23] In this context, it is important to give attention to the distinction Xaxa has drawn between 'Hinduization' and 'Sanskritization'. A subtle point he makes is that tribal transformation can move in the direction of peasantry without loss of those attributes that characterize tribes.[24] In what follows, we take up Xaxa's suggestion that tribes be studied in their own right and not just with reference to mainstream Indian society.

For prehistorians tribal society represents a stage of social evolution that took its shape in the neolithic 'revolution'—the transition when, any time after about 9000-8000 BC, and in various phases and places in western Asia and South Asia, diverse groups took to cultivating crops and taming and breeding animals, thereby ceasing to rely exclusively on hunting, gathering, foraging, and fishing for their food. Agriculture increases the carrying capacity of land: by one estimate, one hunting-gatherer requires an area that can support 10 to 20 agriculturists. So more dense population is possible. Equally important is the sedentism that goes with agriculture.

Hunting, fishing, and the gathering of wild fruits, nuts, and roots which constituted the economy of the world for tens of thousands of years until about 9000 BC here or 5000 or 1000 BC there, is marked by the periodic movement of the camps of small groups of families. Basic household production is supplemented by occasional co-operation between families for the hunt of a large animal, or the setting up of a camp. It is characteristic of hunter-gatherer society that such interfamily co-operation is discontinuous, and the hunting teams *ad hoc*: when today's team regroups a few days later, there will be some change in members.

So too, a dry-weather camp near a permanent water hole will not be inhabited by the same families returning to it each year. And when disputes arise, a family can move and begin to collect and hunt with another group. Thus this is a social form marked by fission-fusion-flux, logically connected with the absence of storable food, shift of habitations in tune with changes in natural vegetation and fauna, discontinuous co-operation, and an 'immediate returns economy'. This is not tribal society.[25]

When plough agriculture together with animal breeding and herding were instituted, the village came into existence, sedentism being a function of (a) the higher carrying capacity of the land and (b) the delayed returns from plough agriculture. After sowing, a crop has to be fenced, tended, watered, and weeded for months, until the harvest. Cereal agriculture gives storable food, that can be consumed in the months between one harvest and the next. Moreover, wheat, barley, rice, and millet require to be processed before cooking, so that house and village now acquire—besides pottery—permanent and immovable fixtures like threshing floors, storage bins/pots, querns, and grinding stones. (Such fixtures are in fact archaeological indicators of tribal or agricultural societies.)

The new social form—at the opposite end of the spectrum from hunting-gathering[26]—was built on bonds that endure down the generations. One generation draws benefits from the previous generation's agricultural labours, its ditches and wells, its animal breeding, its nurture of the forest, and its management of the grain store. And important bonds across the generations are also built by inter-family co-operation during the sowing, ploughing, harvest, and threshing. Agricultural societies flourish when co-operation is continuous. Groups of families are organized as collectivities on an enduring basis, even as the family remains the unit of production and consumption. The results of co-operation never being

immediate, the descent group and the content of relationships down and across the lineages take shape and give tribal society its form.

In pre- and proto-historic India, there were dozens of such early societies. Common to them are small villages, simple material culture, a limited range of tool types, mostly one-room huts, a few crafts like the production of pottery and clay figurines, and diverse food procurement strategies.

Archaeologists have given little attention to Indian prehistoric cultures as tribal. Instead, recent ethno-archaeological work has become fixated on contemporary 'tribes' as living representatives of the Indian stone ages. The New Archaeology that came to us from America insists on observation of current practices, so that we would understand how the archaeological record is created. We would understand pottery debris if we observed a potter at work today, and the rate at which pots were discarded at the wheel or got broken in the kiln—and then the quantum of debris excavated in one locus could give us an idea of the total output of a prehistoric potter. Observation of hunting and animal-butchering practices gives us information about the animal bones we can expect to excavate at camps or villages. Unfortunately the accent in Indian ethno-archaeology has instead come to be on tracing as many similarities as possible between past and present artefacts/practices, be it pottery techniques, functions of artefacts, or pit dwellings. Continuities have been emphasized over formation processes of the archaeological record. That this approach to tribal culture as fossilized is objectionable—and politically inscribed—is not understood. And so little have archaeologists thought about tribalism itself, that the criteria for inclusion in the Schedule (mentioned above) are used to define tribes.[27] 'Backwardness' and 'primitive' techniques are said to be instrinsic to tribes, not the result of mainstream domination or exclusion.

Let us move on to prehistory and explore tribalism so as to give it content and shape, without recourse to any 'Other' as a backdrop. What kinds of tribes were there, with no hierarchical structures to assimilate to, or remain separate from? I will give thumbnail sketches, for that is all that excavated data allow, and then indicate a few patterns that emerge.

First, neolithic and chalcolithic ('copper-stone') cultures inhabited a variety of landscapes, and there is no essential connexion between 'forest' habitat and tribal life. Economies comprised combinations of agro-pastoralism, hoe agriculture, and plough agriculture, with substantial inputs from hunting, fishing, and collecting. There would also have been groups of pastoral nomads who did not live in villages and left scant archaeological remains. Flourishing tribal ancestor cults (to which I shall revert presently) of the iron age are also archaeologically attested.

In the valley of Srinagar, in neolithic settlements approximately contemporary with the Harappa civilization, people first lived in pit dwellings and later in above-ground houses, using, surprisingly, no tools of flaked stone—the latter are ubiquitous at early Indian sites. While the plants and animals bred were wheat, barley, cattle, sheep and goat, obviously derived from the plains of northwestern India and Pakistan, there were also exotic traits like stone harvest knives and bone harpoons that are recognized as traits of the Chinese neolithic sites. The Kashmir neolithic is thus a curious combination of some South Asian and some Chinese and Central Asian culture elements,[28] and we can tell that 'isolation' is not an issue, even in early times with rudimentary transport mechanisms.

Regarding social life, we find an interesting feature at the famous site of Mehrgarh, one of the earliest farming villages in South Asia. Here, rectangular houses as well as compartmented structures were in use from the beginning. Over time, compartmented mud structures comprising usually two rows of, say, five very small cells each, flanking a central corridor or row of rooms, increased in number. With no fireplaces or kitchen refuse, and no smoke stains on the walls as in the dwelling houses, these appear not to have been residences. They were probably built as community structures, perhaps granaries (a few charred grains and grain impressions in the mud plaster of the walls were found) and/or locations for craft production. (In later strata at the site, perhaps significantly, instead of group granaries there are large storage jars set in the floors of individual houses.) Also remarkable in the context of the scale of community endeavour were the terraces and retaining walls built (from 5000 BC onwards) to support the houses that stood on a sloping mound. According to the excavators these walls were originally of 'collossal' dimensions: the remains of one reinforcing wall is almost 3 m thick and 30 m in extant length. Another retaining wall still stands to a height of seventeen mudbrick courses.[29]

All over peninsular India in the iron age of the first millennium BC, megalithic memorials and graves were raised for the dead with massive stones, even though housing was confined to one-room pole-and-thatch or mud huts. It is significant that it was the dead who were 'housed' in structures of permanent stone, not the living. Stone graves were collective, containing the excarnated remains of several men, women, and children. There is not only collective burial, but dozens, even hundreds, of collective stone graves are sometimes found in one cemetery. Collective and secondary burial, emphasis on the group rather than the individual,

and on the dead rather than the living, indicate that cults of dead ancestors had spread and flourished across the peninsula among several tribes.

Typologies of the megalithic monuments ('passage chamber tombs', 'dolmenoid cist circles', urn burial cemeteries, etc) have been carefully made,[30] which lead to the question whether different tribes developed their own funerary architecture and rituals. With more than 300 stone cists of a particular form, the site of Brahmagiri in northern Karnataka, for instance, could have represented the formal funerary-cult centre of a particular tribe or clan. Boulder circles around each monument may mark the locus of rituals, and separate the world of the living (the profane) from the world of the dead (the sacred ancestors). Perhaps also, these sites served as territorial markers. In commemmorating its ancestors, a group recalls/re-states/guards its lines of legitimate descent. It explicates who is a member and who is excluded, thereby making the lineage/clan/section a sharply defined group. Such mechanisms become necessary when groups contest lands amongst themselves.

Speaking of death and funerary ritual, in a little-known post-Harappan culture in southern Punjab (the Cemetery H culture known at Harappa and at several unexcavated sites in Bahawalpur, Pakistan) occurs a cemetery remarkable for the quality of the urns that took the remains of the dead (some of these are exhibited in the National Museum). The urns were large, even two feet high, round or ellipsoid, and covered with inverted 'saucers'. A beautiful glossy red and adorned in runny black paint with peacocks, animals, sun and moon, these urns perhaps narrated mythologies—and this is an outstanding instance of what could be called 'non-verbal communication in preliterate societies'. Significantly, Sankalia found the worksmanship of the pottery to be of a higher standard than the earlier Harappan pottery, although

the 'Cemetery H people' lived in poorly constructed and small huts on the now-deserted mound of Harappa.[31]

Not all known neolithic and chalcolithic cultures of South Asia were 'the developmental stages' of complex social formations or civilizations to follow, and deserve our consideration in their own right. Significantly, cultures like the Cemetery H that succeeded the Harappan were spread over small areas and lacked the fine buildings, art, writing, and technology characteristic of the Indus cities. Obviously, after the disruption of urban life and bronze-age states, there was a reversion to dispersed tribal life.

The reader may object that I am only assuming that all these early preliterate cultures with simple technologies were tribal. But it is not just analogies with living groups that lead to this correlation; there is also the internal logic of various social structures—we have seen the logical connexion between the coming of agriculture and tribalism. Just as all archaeologists accept that early to late stone age sites represent band-level societies of hunters and gatherers, so we can interpret neolithic sites as tribal, and Harappan sites as remains of an urban, state-level, society. If we were to follow postmodern trends and reject the tribal character of chalcolithic or early iron age societies, moreover, we would have to assume that they were special instances of class, caste, or state-societies—and that would mean that social stratification is inherent in human culture. This latter approach, part of the ideology of late capitalist academia, is unacceptable to me. Only two phenomena are intrinsic to human life, the family and language. Further, when archaeologists avoid the social formation issue altogether, they end with facile and embarrassing analogies with twentieth-century institutions and life

(even referring to domestic servants, or to the East India Company factories).

Between about 2,300 BC and about 900 BC, and in the area between northern Karnataka-Andhra Pradesh and eastern Rajasthan, there were several archaeological 'cultures': the southern neolithic, the Kayatha culture (in Malwa and on the upper Chambal system), the Banas culture (near and northeast of Udaipur), the Savalda and Malwa cultures (the latter spread over teak- and sarai-forested Malwa, on the lower Narmada and Tapi rivers, on the Godavari-Pravara system, and south to Inamgaon on the Ghod near Pune), and the Jorwe culture (stretching from the Narmada to the Tapi, Godavari-Pravara, Ghod-Bhima, and Nira rivers).[32] These are distinguished from one another mainly in the kinds of fine pottery that were in use for eating and drinking, offering food, and ritual. Each of these was a stable cultural form in that, at least as manifest in its material remains, it endured in some places for three, at others for eight, centuries. This in spite of the fact that the villages were especially small—Navdatoli on the Narmada, Sankalia thought, had a starting population of less than 200.

At a few sites these archaeological entities or cultures occur in stratigraphic sequence. But while there is a general chronological succession, there are also spatial overlaps of these cultures, and we cannot attribute the origins of one culture entirely to its predecessor. Also, we find fuzzy boundaries between the material cultures of these archaeological entities. (It is not easy, in any case, to equate an archaeological culture with one tribe/clan.) But the marked technological similarity in the kinds of stone tools, house forms, and cooking places (oval pits with clay columns or two- or three-

arm clay *chulahs*) indicates contact and exchange of ideas across the regions. Let us now consider technology.

Most of the sites of this area have produced tools flaked out of fine-grained rocks, thin and sharp-edged tools in various forms for different uses. Experiments have shown that such tools can be used not only for cutting joints of meat or peeling vegetables or scraping wood, but even for cutting small blocks of teak. The tools of tree felling and land tillage were adzes, axes, and hoes made of coarse-grained stones first struck into shape and then rubbed on rocks to produce an even surface and a sharp and straight cutting edge. Like the flaked tools, these too took many forms. Experiments have shown that it can take about five hours of grinding with one's entire body weight on a tool, to get one with smoothed surfaces.[33] And to produce the requisite thinness of cutting edge was a matter of practice and skill. (We often find ground stone axes out in the countryside rather than in house remains, and obviously they were discarded, or left behind for future use, where they were used, in forest or field.) Agricultural technologies in western India also included the use of fixtures such as storage bins or lime-coated pits, pottery storage vessels set up on stone supports above mud platforms in the houses, and massive querns or grain grinding stones, and pestles.

House construction, too, was by simple techniques, the round house being the easiest kind to roof over, but the rectangular shape also in existence. Walls were of wooden or bamboo posts, or of mud or mudbrick, with or without pebble foundations. Floors were plastered with rammed mud or cowdung, and sometimes covered with flat stones.

Crafts were few, mainly the production of pottery of various sorts at each site, a small proportion decorated with painting. There was occasional shell cutting and making of simple ornaments of

shell, clay, or stone. (If there were fine wood carving or basketry work, we would of course not retrieve it.)

Technology is not, however, reducible to tools and crafts. We could say that the subsistence technology evident in these cultures is as complex and sophisticated as that of the Harappan civilization or the early historic period. There were many cultigens. For example in the Malwa and Jorwe cultures, paleo-botanists identified about 13 crops. There were *rabi* crops (wheat, barley) and *kharif* crops (*mung, jowar,* rice), west-Asian cereals (wheat and barley) as well as South Asian domesticates like the drought-resistant *ragi*. Besides cereals the people grew protein-rich legumes (*mung, mussoor, urad, khesari,* etc.) that contribute to nitrogen-fixation in the soil—in fact legumes of a greater range than grown in the region in recent decades. This is circumstantial but sound testimony to intercropping, which is ecologically much more sound than mono-cropping. In the Bhil village of Anjanvara, Baviskar noted up to 15 different crop plants in a single field.[34] Animal bones indicate that cattle were bred for meat and milk, as also sheep and goat.

The people of Inamgaon near Pune hunted many animals for their meat—blackbuck, four-horned antelope, *sambar, chital* deer and hare. So too, birds. All this and the recovery of seeds of *ber*, wild dates and *jamun* show that the thorn forest was a food resource of central importance. And the bones of river fish, and the shells of mussels, turtles, and crabs are also present. For Central Indian pre-tribal cultures too, Zarine Cooper found, river resources appear to have been of major – if not central – importance. The Pondo, a little known group living in the vicinity of Jabalpur – Raigarh, collect about 24 varieties of tubers, sweet and bitter; the leaves, flowers and shoots of about 26 trees, 16 varieties of fruit, and, in the monsoon months, 16 varieties of mushroom.[35] The hill people around the Narmada valley eat more than 25 kinds of river fish.[36]

Further, it has been found that at Inamgaon not only flaked stone tools but the cores from which they were fashioned and the waste flakes resulting from flaking, are present in most houses. While counts of cores and blade tools on house floors indicate that often blades were flaked off outside the house—in the field or forest, presumably—this nevertheless means that all families were equipped with the tools and weapons for the hunt. This puts in question the dichotomy many scholars create between the agrarian sector and the forest; finding the one receding before the other in different historical periods. It is more likely that the forest has always been integral to village economies and that slash-and-burn or shifting cultivation, especially, has never been an exclusive land-use form.

As we shall see in another essay in this volume, the small chalcolithic village of Inamgaon lay in the famine belt of Maharashtra but was inhabited for some 800 years: this is like finding a present-day village to have been continuously occupied since the time of the first Delhi Sultanate. We suggest more than one reason, in the pages to follow. Inter-cropping would have preserved soil fertility; also, if rains failed in one or other time to the detriment of a certain crop plant, other crops, sown later or earlier, would survive. Subsistence diversity, which I have mentioned, would have enabled people to survive agricultural failures. There would also have been tribal institutions such as sharing, mutual help, and community scheduling.[37] Joint tenure is substantively different from the ownership of private property. As stated, individual rights are embedded in collective rights; the right of use is never absolute; clan/tribe and family are both owners, and, as Mahapatra emphasizes, the crucial issue is the mode of access to resources and the concept of sharing fairly.[38] Moreover, tribes do not cease to have rights over lands that lie unused. The absence of

the market system would have meant absence of the vicious spiral of indebtedness that ruins farmers when crops are bad.[39]

Professor Sankalia viewed the chalcolithic cultures of Malwa and Maharashtra as the result of gradual colonization, by people who had learnt the cultivation of millets, wheat and barley, and to herd cattle and sheep, elsewhere. The important point is that these colonizers often settled on black cotton soil tracts and would have had to learn its unique water-retentive properties that make *rabi* cropping possible inspite of absence of late rains (black soil can hold water even up to February), and its fallow patterns, again unique.

That these early societies were not isolated is indicated also by bits and pieces of excavated finds. At Kayatha there are strings of stone beads that appear to be of Harappan workmanship, and the copper bangles and axes there may also be of external origin. *Shankh* and other shells picked up from coastal beaches occur at Inamgaon near Pune; so too gold (in all likelihood from Karnataka). At Navdatoli on the banks of the Narmada occurred a couple of beads of lapis lazuli (its origin lies in Afghanistan) and also a coral bead (coral was procured from coastal regions). A coral bead occurs at chalcolithic Prakashe also. In fact it cannot be a coincidence that chalcolithic Navdatoli was established on one of the few available north-south crossings of the Narmada, just as Prakashe, one of the largest of the chalcolithic sites, lies on one of the few crossings (ferry points) of the Tapi river. Both sites lie on a major north-south route that would be important in centuries to come. The name Navdatoli, in fact, indicates the existence of an old village of boatmen.

When we pursue the finer details it becomes difficult to separate out the chalcolithic cultures as distinct entities. In Maharashtra it is not only a general colonizing movement from Malwa that we find. There are also elements of the southern

neolithic culture, for instance, pottery, a distinctive stone axe form, and the burial of infants in urns placed mouth to mouth on their sides under the floor of a house. It is the fine pottery that distinguishes the Malwa culture from the generally later Jorwe culture, this pottery being sometimes less that 10 per cent of the total pottery excavated. This fine painted pottery was probably the major indicator of ethnic identity within a (generally uniform) techno-complex. But while Malwa and Jorwe fine wares are stratigraphically consecutive at many sites, they actually occur in the same house at Navdatoli. At this site, Lustrous Red Ware of Kathiawadi vintage, and Black-and-Red Ware of the sort used in Ahar near Udaipur, also occur in the houses, together with the local wares. The excavators considered all the different wares, however, to have been produced locally. So such 'mixture' is surely significant. If we could guess that pottery production were women's work, a daughter thus learning from her mother, and if post-marital residence was on the whole patrilocal, we could dare to suggest that at Navdatoli some residents had more than one wife, and they came from different tribes.

None of our excavated village settlements is ever walled in. And there is little other than stone projectiles that lends a military character to our prehistoric cultures. This is in marked contrast to the later historic periods, when peoples like the Bhils often lent Rajput rulers armed militias and guarded their hill passes and made forest roads safe for trade. We have said that in prehistory no 'Other', against whom tribal identity and autonomy were asserted, would have been present. It is only in later history that pastoralist chiefs would have had the scope to become the leaders of bands of armed warriors distributing loot or even become rulers of larger areas.

Rudolf Heredia often insists that the margin appears only when you draw up the page. And this may be why we have scant evidence in the prehistoric period for the emergence of tribal chiefdoms: little scope for raiding, and no external power to prop up the position of an emergent chief.

In summary, I have indicated the historical moment when tribal organization comes into being —tribal life has not been with us since "time immemorial"! A more crucial aspect of tribal life, which I have found is not always given due importance, is community ownership of natural resources. We do not find a field-forest dichotomy; instead the two were integrated to make for secure subsistence. Even though, through history, theoretically it is the political separation of tribes that counts, not cultural isolation — we cannot say that in prehistoric times tribes found their identity in their structural distinctness from class society, or that this form materializes only in juxtaposition to the state. There is thus no question, in the context of this paper, of assimilation *versus* separation. In prehistoric times tribal people were obviously not driven out into unproductive regions, to the 'margins': instead, they made successful adaptations to those very regions. Tribal institutions and subsistence diversity appear to have made possible long sedentary occupations of villages, but there is also evidence for abandonments, migrations, and the colonization of new lands.

State formation processes did occur in many cases in medieval and early modern times. In east-central India and in the north-east, and in Bastar, tribal rulers became the feudatories of the subcontinental powers. Land grants were given to brahmins and brahmanical rituals were adopted to legitimize ruling houses. Brahmins were made administrators.[40] Such processes of establishment of tribal ruling dynasties, however, were obviously dependent on external recognition and support. In the case of the

Gangetic delta country, the extension of rice agriculture into erstwhile forest was possible only when local tribes were organized by Muslim *pirs* and *shaikhs* to labour for several years on forest clearings and the newly formed village communities adopted several Islamic institutions of social control and revenue extraction.[41] For the rest, we have found that prehistoric tribes, in the absence of state societies against which they asserted their identities or worked out their histories, did not have an inbuilt or necessary momentum towards political complexity.

City life and writing are not characteristic of tribal life, not because certain groups were inherently 'backward', but because tribal society lacks the elites and social hierarchies and institutions of governance that create the need for written records and make possible the social complexity and division of labour that is the essence of urbanism. In the world, literacy has appeared in particular social circumstances where particular kinds of state institutions have emerged.[42]

On the one hand we could infer that only rarely in history have groups moved out of the structural limitations of their social structures, and we should cease to romanticise the subject of our study. On the other hand we could point to the sophistication of subsistence systems (and of course small populations) and suggest there were no compulsions to change. Whichever way we thought, it would not lead to the conclusion that tribal life is intrinsically backward. If further argument is necessary on this point, the reader is referred to Mukkulika Banerjee's study[43] of the Khudai Khidmatgar movement of the Pathans (1930-1947).

Virginius Xaxa rightly states that it is high time we studied the Bhils as Bhils—that is, as a community—and not with reference to caste or the state or acculturation. With individualization, few tribal social institutions survive today. But there are many Indians

who have been living as tribes. Shall we just shrug this off because the term is troublesome to some academics?

Notes

[1] This talk was given in December 2000. A revised version appeared in *Social Scientist*, Vol. 31 nos. 1-2, 2003, pp. 17-36.

[2] Perhaps the most forceful expression of this view comes from Susana Devalle, *Discourses of Ethnicity: Culture and Protest in Jharkhand.* Delhi: Sage, 1992, pp. 49-76. Devalle nevertheless refers to indigenous or adivasi groups in Jharkhand (whose ancestors, she says, were the *dasas* and *dasus* of the Vedic period), and to lineage- and community-based society. The mistaken category called the tribe, she says, is in reality an ethnic group. She does not give weight to pre-colonial systems of collective land tenure. In the view of Jaganath Pathy, 'What is a Tribe? What is Indigenous?' *Vikalp*, IV (1995), pp. 33-8, too, the concept originated in colonial oppression and has a negative connotation. Pathy goes so far as to say that the term is used pejoratively in academic discourse also.

[3] A. Baviskar, *In the Belly of the River.* Delhi: Oxford University Press, 1995, pp. 92-4, 113-15.

[4] M. Banerjee, *The Pathan Unarmed: Opposition and Memory in the North West Frontier.* Oxford: University Press, 2001, p. 30.

[5] N.S.Jodha, 'Common Property Resources for the Rural Poor', pp. 150-89, in R. Guha (ed.), *Social Ecology*, Delhi: Oxford University Press, 1994, points out that in peasant society too, common property resources, often neglected in current research, are the resources that provide a buffer against drought and rising prices and help the poorest rural families to survive, even though the returns on labour on such lands are not high.

[6] Baviskar 1995, p. 116; R.S.Mann, 'Cultural-Ecological Approach to the Study of the Bhil', pp. 117-26, in R.S.Mann (ed.), *Nature-Man-Spirit Complex in Tribal India.* Delhi: Concept, 1981.

[7] L.K.Mahapatra, 'Customary Rights in Land and Forest and the State', pp. 84-96, in M. Miri (ed.), *Continuity and Change in Tribal Society.* Shimla: IIAS, 1993. (pp. 86-7, 91).

[8] Virginius Xaxa, 'Transformation of Tribes in India', *EPW*, 12 June 1999.

[9] In my analysis Bronze-Age polity of the third millennium BC is an instance of newly-formed elites ruling over societies that were still tribal in organization. This model draws much from the "tribal states" of Africa and the notion of the Asiatic Mode of Production. When tribal tenure exists and there is also a superimposed ruling elite, the structure takes on the features of both tribe and state. Yet this does not mean that we throw out the concept of the tribe altogether, or alter the definition adopted above.

[10] Thus J. Pathy, in 'What is a Tribe?' (1995) objects to the criteria of the Schedule of tribes and asserts that these do not apply to the majority of tribes included in the Schedule.

[11] Vimal Chandra, *Lists of Scheduled Castes and Scheduled Tribes: With Clarifications*. Delhi: Saini, 1981, pp. 5-6.

[12] Perhaps it needs to be said that the most persecuted of tribal groups, the De-notified Tribes (pastoralists, craftsmen, snakecharmers, acrobats, etc) enjoy no protection or positive discrimination, not even on paper. Only in Maharashtra are they entitled to job reservations. Susan Abraham, 'Steal or I'll Call you a Thief', *EPW*, July 3 1999, pp. 1751-3.

[13] The Bedouin of Arabia, who represent almost the classic case of all that is 'noble' about tribal society, inhabit one of the emptiest deserts in the world.

[14] Personal communication.

[15] J. Goody, 'Marriage Policy and Incorporation in Northern Ghana ', pp. 147-83, in J.Goody, *Comparative Studies in Kinship* (Stanford: University Press, 1969), states that when there is no social hierarchy, there is no room for major cultural differences, and 'immigration means rapid assimilation' and 'homogenization'. According to him, only those acephalous tribes survive incorporation in a state who are ever ready to take up arms to defend themselves. They sustain their separate identity largely through endogamy and through strategies of minimal interaction with society at large.

[16] Romila Thapar, *Exile and the Kingdom*. Bangalore: Mythic Society, 1978.

[17] G.N.Devy, 'Introduction', pp. ix-xvii, in G.N.Devy (ed.), *Painted Words*. Delhi: Penguin India, 2002.

[18] V. Elwin, *The Tribal Art of Middle India*. London: Oxford University Press, 1951, pp. 90-7, 186-9.

[19] B.K.Roy Burman, 'Tribal Population: Interface of Historical Ecology and Political Economy', pp. 175-216, in M. Miri (ed.), *Continuity and Change in Tribal Society*. Shimla: Indian Institute of Advanced Study, 1993, pp. 176-78.

[20] R. Deliege, *The Bhils of Western India*. Delhi: National Publishing House, 1985, pp. 14-54.

[21] Nandini Sinha, 'Bhils in the State Formation of Mewar', pp. 287-304, in Dev Nathan (ed.), *From Tribe to Caste*. Shimla: IIAS, 1997.

[22] A. Baviskar, *In the Belly of the River*, pp. 88-96, 103-5.

[23] R. Deliege, *The Bhils of Western India*, pp. 49-50, 108.

[24] V. Xaxa, 'Transformation of Tribes in India', *EPW*, 12 June 1999. Perhaps, I suggest, it is when 'individualization' occurs, when lands are registered by state authorities in the names of individuals—that joint tenure ceases and groups cease to have genealogical depth, while the bonds of kinship slowly wither away and tribes take on the character of a peasantry.

[25] Exceptions are some hunting-gathering-fishing Indian communities on the western coast of the north American continent. They are fully sedentary because of the role of fishing in the economy.

[26] Social evolution is not fashionable today. Postmodernists and others, in mistaken notions of justice and in opposition to racism, abhor hierarchy even as they live in conditions of advanced capitalism. Yet I am not embarrassed by the concept of social evolution, which says that in the course of culture change some societies get transformed into new levels of organization, inevitably more complex structures with more parts/segments that require a more developed integrative mechanism. Evolution is not equated with the 'march of progress ' or the 'triumph of reason' and all would insist that tribes cannot be called 'primitive'. But that does not mean that tribal life does not have its limitations. More important, it is the core features we have described that are common to tribes at all periods and places.

[27] See for example, B. Allchin (ed.), *Living Traditions*. Delhi: Oxford and IBH, 1994. Especially p.125.

[28] B.M.Pande, 'The Neolithic in Kashmir', *The Anthropologist*, 17 (1970), pp. 25-41.

[29] G. Quivron, 'The neolithic Settlement at Mehrgarh', pp. 59-65 and A. Samzun, 'The Early Chalcolithic: Mehrgarh Period III', pp. 66-71, in M.Jansen, M.Mulloy and G.Urban (eds.), *Forgotten Cities on the Indus*. Mainz: Philipp von Zabern, 1991.

[30] See A. Sundara, *The Early Chamber Tombs of South India*. Delhi: University Publishers, 1975; B. Narasimhaiah, *Neolithic and Megalithic Cultures in Tamil Nadu*. Delhi: Sundeep Prakashan, 1980; S.B.Deo, *Problem of South Indian*

Megaliths. Dharwar: University Press, 1973; L.S.Leshnik, *South Indian Megalithic Burials: The Pandukal Complex.* Wiesbaden: Steiner Verlag, 1974.

[31] H.D.Sankalia, 'The Cemetery H Culture', *Puratattva*, 6 (1972-73), pp. 12-19.

[32] The discussion that follows is based largely on B.K.Thapar, 'Prakash 1955: A Chalcolithic Site in the Tapi Valley', *Ancient India*, 20-21 (1964-65), pp. 5-167; H.D.Sankalia, B.Subbarao, S.B.Deo, *The Excavations at Maheshwar and Navdatoli.* Poona and Baroda: Deccan College and M.S.University, 1958; H.D.Sankalia, S.B.Deo, Z.D.Ansari, *Chalcolithic Navdatoli.* Poona and Baroda: Deccan College and M.S.University, 1971; H.D.Sankalia, 'Ecological background of the Chalcolithic Culturesof India', pp. 132-165, in K.Kennedy and G.Possehl (eds.), *Ecological Backgrounds of South Asian Prehistory.* Ithaca: Cornell University Press, 1973; Z.D.Ansari and M.K.Dhavalikar, *Excavations at Kayatha.* Poona: Deccan College, 1975; M.K.Dhavalikar, H.D.Sankalia, Z.D.Ansari, *Excavations at Inamgaon, Volume I.* Pune: Deccan College, 1988; M.K.Dhavalikar, 'The Living Past: The First Farmers of Maharashtra', pp. 87-105, in G.-D. Sontheimer (ed.), *Folk Culture, Folk Religion and Oral Traditions in Maharashtrian Culture.* Delhi: Manohar, 1995.

[33] V.Shinde, 'An Experimental Study of the Technology of Stone Tool Manufacture', *Bulletin of the Deccan College Postgraduate and Research Institute*, 47-48 (1988-89), pp. 311-17.

[34] A. Baviskar, *In the Belly of the River*, 1995, p. 139.

[35] R.K.Sinha, 'A Note on the Nature-Man-Spirit complex of a Tribe (Pando)', pp. 69-115, in R.S.Mann (ed.), *Nature-Man-Spirit Complex in Tribal India.* Delhi: Concept, 1981.

[36] A. Baviskar, op. cit., p. 141.

[37] We may also refer to tribal delayed-returns systems of water harvesting. The Maldhari nomads of the Banni in Kutch have mastered the collection of rain water in shallow depressions in such a way that it forms a layer of potable water above the brackish subsoil water. This system gives water for up to four months. These are obviously community projects, directed and organized by community elders or chiefs. A.Agarwal and S.Narain (eds.), *Dying Wisdom.* Delhi: Centre for Science and Environment, 1997, pp. 146-9.

[38] L.K.Mahapatra, 'Customary Rights', 1993, p. 87.

[39] In the understanding of the Supreme Court, however, being ousted from their ancestral villages will give tribal people of the Narmada valley a chance to 'enjoy the fruits of science and technology' and make 'a higher quality of life' for themselves. It is 'not fair' that they continue in the same conditions as before.

[40] Surajit Sinha ed., *Tribal Polities and State Systems in Pre-Colonial Eastern and North-Eastern India.* Calcutta: K.P.Bagchi, 1987.

[41] R. Eaton, *The Rise of Islam and the Bengal Frontier.* Delhi: Oxford University Press, 1994.

[42] See also T. Patterson, 'Archaeologists and Historians confront Civilization, Relativism and Poststructuralism', pp. 49-64, in A. Dirlik, V.Bahl and P.Gran (eds.), *History after the Three Worlds.* Lanham: Rowman and Littelfield, 1994.

[43] *The Pathan Unarmed.* Oxford: Oxford University Press, 2001.

A Chalcolithic Village in a Famine Belt

A CHALCOLITHIC VILLAGE IN A FAMINE BELT

I began writing this review article on the day that Professor Sankalia's death was announced, and cannot refrain from expressing my sense of loss. It is reassuring that he lived to see the publication of the Inamgaon report,* for there can be no better testimonial to the achievements of the Deccan College Department of Archaeology, a department which owes its structure and tradition of scholarship largely to his guiding hand.

With its lack of substantial architecture Inamgaon was an extremely difficult site to stratify. Clay floors curling up at the edges, post-holes, pits, and burials provided almost the sole 'structural' remains of several generations of occupation. Yet we have a comprehensive stratigraphy based, not on the character of the artefacts , but on the principles of soil deposition. Only the most meticulous trench methods were capable of discovering the edges of floors or the internal division of house space by dwarf mud walls and screens, the re-use of silos as fire-pits, or to what extent a house

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* M.K. Dhavalikar, H.D. Sankalia and Z.D. Ansari, *Excavations at Inamgaon, vol. 1.* Pune: Deccan College Postgraduate and Research Institute, 1988.

Author's Note: My thanks to Purnendu S. Kavoori for helping me to think out the problems concerning the animal bones.

floor was roofed over (floor edges and post-holes do not coincide), or whether rat coprolites were in situ in a layer, or intrusive from holes burrowed through upper layers.

Detailed analyses and quantifications appear not only of all artefacts but also of plant and animal remains; and there are several chemical analyses of soils, anthrosols, human bones and pottery, which give clues to the relative intensity of human activity between levels or between roofed spaces and the intervening open areas of the habitation; chalcolithic diet; the sources of ceramic clays; and the firing temperature in pottery kilns. We are given housewise distributions of blade tools, and layer-wise occurrences of various categories of ground stone and copper tools, clay figurines, lamps, and so on. The major lacuna is that it is difficult if not impossible for the reader to reconstruct the list of artefacts actually occurring in a particular house—to find out, e.g., whether one or more *lotas* were likely to occur in a house, or how Malwa and coarse pottery actually coexisted in the houses.

The village of Inamgaon was occupied from 1600 to 700 BC in the following sequence supported by some 38 radio carbon dates:

> the Malwa phase: a 1 metre deposit, levels 16 to 12: 1600-1400 BC.
> the Early Jorwe phase: a 1.5 metre deposit, levels 11 to 6: 1400-1000 BC.
> the Late Jorwe phase: a 1.5 metre deposit, levels 5 to 1: 1000-700 BC.

It is a 5 hectare site and the excavators suggest a population of about 1000, which fell appreciably in the last phase.

Inamgaon lies on an alluvial terrace of the Ghod river which rises on the high crest of the Western Ghats and flows southeast to join the Bhima. Its landscape is semi-arid, with open thorn forest.

Given the lack of independent evidence for wetter climatic conditions than today in the chalcolithic period, the major point of interest about Inamgaon (and indeed other Malwa and Jorwe sites, such as some of the Tapi-tributaries sites, Nevasa, Daimabad, Jorwe, Sastewadi, Theur and Songaon) is that it lies in a north-south belt of plateau country falling within the rain shadow of the Ghats, i.e., in that region of the northern Deccan plateau which has the lowest rainfall, marked by the less-than-60-cm isohyet, and the highest rainfall variability. Precipitation occurs from June to September-October and there is a long dry season thereafter, with great heat after March causing rapid evaporation and a fall in the water table. The rivers are at their lowest in March and April, sluggish or even stagnant threaded streams in their wide beds. This low rainfall penumbra is one of the 'famine belts' of peninsular India and in recent centuries has repeatedly experienced stress. At Ahmadnagar, the typical meteorological station of the belt, the variability of the mean is 35.8 per cent. In 70 years spanning the turn of this century the lowest rainfall recorded (in 1876) was 21.25 cm while the highest (in 1916) was about 118 cm.[1] Ahmadnagar is likely to suffer 11 dry years (including 7 of acute drought) in every 50. Variability occurs not only in annual rainfall but also in the time of its onset and breaks in the rainy days within the monsoon period.

While the chalcolithic sites of Jorwe, Daimabad, and Nevasa were located in a zone containing some of the deeper and therefore better black soils of Maharashtra, and even better black soils occur in the Tapi and the Tapi-Purna basins (with a very large number of sites reported by Shinde[2] on the Tapi and its left bank tributaries and Tuljapur Garhi[3] on the Purna), the location of Inamgaon was not so favoured. It is a challenge to explain why some of the earliest farmers of the northern plateau chose to settle in this belt, and how they would have coped with both drought and marked seasonal

rhythms of relative abundance and scarcity. Although this aspect is not particularly emphasized in the report, it forms the focal interest through which I have read the report.

Whether the strategies used were successful or unsuccessful depends on one's point of view. On the one hand we can say that at least 600 years (we count only the first two phases because the status of agriculture in the last phase is uncertain) of agricultural production at the site, and that with a very simple technology, surely speaks for success. On the other hand we have a very low life-expectancy statistic—it would be useful to know if it is low in comparison with other protohistoric sites—for in the later two phases when adults and children were buried in the habitation, there are about 154 child burials out of 243, i.e., 63 per cent child burials. Then there is also evidence from the bones for infantile scurvy and possible iron deficiency anaemia.

It is understood as a general principle that people who live in relatively small and scattered populations, in areas marked by uncertainty of rainfall or other natural resources, will spread the risk by using a wide spectrum of plants and animals as food, and this diversity relates to both the number of species as well as the range of micro-environments used. During 12 seasons of excavation more than 30,000 identifiable plant remains and more than 24,000 identifiable bones were recovered at Inamgaon. The quantity of plant remains is not exceptionally high: it would be useful to know what percentage of excavated earth was put to water flotation for the recovery of grains and seeds, and since these did not come from concentrated loci, on what basis soil samples were chosen for flotation. For we need to develop strategies for maximizing plant recovery. Let us first consider the evidence for crops, with the 'diversity' aspect in mind.

The main crops have been identified on the basis of the number of seeds of a crop occurring through the various strata. I don't see how else this could have been done. Quantifications by weight are confusing as cereal grains weigh much more, but have different starch and protein contents, than small legume seeds. So the relative importance of different plant foods is usually gauged by their occurrence as a percentage of the total plant remains.

But this is not a foolproof method. Most identified seeds at Inamgaon occurred in carbonized form, except for those of *Coix lachryma*, which have a tough silica sheath. But we do not know how exactly seeds get carbonized and incorporated into habitation debris. It is assumed that seeds fall into cooking fires or otherwise get accidentally burnt and discarded. But at Inamgaon only 43 out of 163 excavated houses, including a couple which burned down in antiquity, produced carbonized seeds, while one burnt house produced no seeds. If the large number of carbonized seeds at the site is due, as suggested (p. 1004), to the practice of seeds being parched before storage or grinding, some seeds being accidentally charred in the process, then we would expect that legume seeds are under-represented, as also the weeds of cultivation, for legumes would not be roasted, and cereal grain was probably cleaned of incidental weed seeds before roasting.

We are cautioned by Miller[4] that at third-millennium Tal-i-Malyan (Iran) 'the quantities of charred grains...were not directly proportional to their use in the ancient economic system'. There is independent evidence for the progressive deforestation of the immediate environs of Malyan, and the quantum increase in the charred seeds from early to late levels was probably due to the increased utilization of animal dung cakes (containing these seeds) as fuel. Further, in habitation debris in both periods, carbonized barley constituted twelve times the weight of carbonized wheat

grains, but in a latrine deposit of later levels, uncarbonized (mineralized or dry preserved) seeds of barley were only half the wheat seeds! One reason for this discrepancy may be that people ate a greater proportion of wheat, and animals, more barley. But the fact remains that taphonomy is of crucial importance. [E.g., burnt cow dung cakes occurred in a fire pit in house 71 of the Early Jorwe phase: is the botanical sample no. 2563 (p.788) from this material?].

Let us assume that the main crops have been correctly identified. They comprise barley, wheat, lentil, the common pea, horse gram (*Dolichos biflorus*) and the hyacinth bean or *val* (*Dolichos lablab*). The prevalence of winter crops is striking—only the last two are summer crops—sown in late September, in spite of the negligible rainfall that occurs between November and March. Minor crops include finger millets or ragi (*Eleucine coracana*) black gram (*Vigna mungo*), green gram (*Vigna radiata*), chickpea (*Cicer arietinum*) and grass pea or khesri (*Lathyrus sativa*) plus 3 grains of rice—both summer and winter crops.

Whatever happened to *jowar*? In 1975-76 Vishnu-Mittre and Savithri[5] identified five complete grains from Inamgaon level 7 as sorghum, but there is no mention of this in the final report. And the matter is important because in many parts of the famine belt the major crop association is *jowar*, with *bajri* (*Pennisetum typhoides*) and a few pulses (we ignore the recent importance of sugarcane and cotton). Wheat is a major crop only where the black soils are deepest, e.g., along the Godavri near Kopargaon, along the Pravara near Nevasa and Daimabad, in Khandesh along the Tapi valley, and in the Purna valley.[6] Elsewhere the hardy *jowar* and *bajri* are the staples of the precarious rainfall region, with *bajri* being even better suited to low moisture and shallow soils than *jowar*, and the adaptability of *jowar* as both summer and winter crop (the

latter if the late monsoon rain has been good). And these crops were known in South Asia in the second millennium: *jowar* at Pirak from about 1700 BC, as also at Daimabad in Jorwe levels as discovered by Kajale; and *bajri* at chalcolithic sites in Saurashtra from roughly 1500 BC onwards.

The matter also takes on importance because Dhavalikar and Possehl's analysis of land use at Inamgaon[7] was based on the assumption that 50 per cent of fields were sown with *jowar*, together with 40 per cent wheat and 10 per cent rice. [It may be mentioned here that the computations in that paper were based on averages of yield figures for various crops given in the Season and Crop Report of the Bombay Presidency and computed at 225 kg per acre. H. H. Mann and N. V. Kanitkar's *Land and Labour in a Deccan Village* (Study No. 2), Bombay, 1921, on Jategaon Budruk, just north of Talegaon Dhamdere and some 45 km northwest of Inamgaon in the famine belt, gives much lower figures: 109 kg/acre for wheat, and 82 kg/acre for *bajri* and the crops sown with it (at Jategaon Budruk, 53 per cent of cultivated land is medium black soil). While the estimates for Inamgaon were a maximum of 200 acres for a population of 1000, at Jategaon Budruk, a population of 736 had 2449 acres of total agricultural land, in, of course, greatly unequal holdings. Similarly if we compare with figures for Jategaon Budruk, Dhavalikar and Possehi's estimates of working cattle and total herd size are very low.]

The variety of pulses grown at Inamgaon, and for that matter in periods III to V at Daimabad, also contrasts with present day practices (p. 792). Today lentil, peas and hyacinth bean are important only in regions with higher rainfall. The sparse evidence for gram, also known at Navdatoli and Daimabad, deserves mention as this pulse has very good drought tolerance and can give a higher

yield per hectare than lentil[8] and yet appears to have been relatively unimportant at Inamgaon.

A systematic site catchment analysis reveals that there was sufficient black soil of medium depth (30 cm to 1 m) and some of greater depth available within a 2.5 km radius of the chalcolithic village to raise crops for a population of 1000. My only difficulty with this excellent exercise is that the projected catchment area, circular by convention, disregards the river, extending symmetrically across both banks. As site catchment is based on the assumption that distance in walking time is the critical variable in the intensity of utilization of various resources, does not the crossing of the Ghod during the monsoon mean that villagers could have covered a distance of say 2 km westward much faster than the same distance eastward?

The problem remains, however, of explaining crop choice—preponderantly winter crops without millets—in the chalcolithic period. The explanation may partly lie in the historical factors. Barley, wheat, lentil and peas had a long history of utilization in the northern subcontinent before the period of the founding of Inamgaon, as also rice. And finger millet and horse gram could have been domesticated by the mid-second millennium further south in the peninsula. At Daimabad, wheat, barley, lentil, grass pea, horse gram, hyacinth bean, and green and black gram were already known in period III, which precedes the Malwa levels.

Two natural factors could have made winter cereals possible. One is the nature of the black soils on level or gently sloping ground. This is a good soil not because of its nutrient content, but because it is highly argillaceous and hence has a high water-retention capacity (upto 60 per cent for medium depth black soil). Baked hard between March and June, black soil supports little plant life and develops large V-shaped cracks. Thereby it ploughs itself in

that friable material on the surface falls into the cracks. But once the rains begin the cracks close, the particles expand, and the soil becomes very heavy to work. The soil can retain water in its lower profiles upto February or March.[9]

The second factor is the distribution of rainfall over the four monsoon months in the famine belt. The major maximum rainfall of the year occurs in September, the minor maximum in June. While September rains are more erratic than those of June, we nevertheless see that at Jategaon Budruk,[10] 5 to 7 cm rainfall in September means that winter crops are possible on the deep-and medium-depth soils.[11]

Around Inamgaon the soils are not as deep and thus water retentive as, for example, in the Kopargaon region. A possible connection may exist between the seeming spurt in the importance of wheat vis-à-vis barley after 1400 BC and the digging of an irrigation channel to the west of the habitation. Flanked by a rubble embankment 11 metres to its east, this channel was dug down to bedrock (inhibiting seepage) and was about 8.7 metres wide. It would have received its flow from a seasonal stream north of the village, i.e., monsoon overflows. At Jategaon Budruk traditional irrigation techniques include the bunding of *nalas* or even the laying of temporary stone and earth dams across the river Vel, to divert water into channels which can be more than a mile long.[12] We are not in typical well-irrigation country here. A well 'will irrigate only one-fourth of that which a well on the alluvial plains of northern India will do' or between 1.2 and 2 hectares.[13] Wells must be dug 6 to 12 metres deep, and since subsoil water collects only in the fracture zones, 40 per cent of diggings may produce no water.[14] At Jategaon Budruk, about 36 wells, clustered mainly along the local *nala*, are said to be capable of irrigating about 32 hectares of rabi crops a year.[15] So the Inamgaon channel may have been the sole or

partial source of irrigation of the medium black soil at times when the late monsoon showers were deficient.

No wood charcoal was identified at Inamgaon as at contemporary Prakash. But seeds of summer and winter maturing wild plants and edible weeds have been found. The list is long, and includes wild date, *jamun* and *ber*, the last apparently the most important. If we add to the ancient crop calendar (p. 791) the months when wild plants or fruit ripened, we can ask if there were foods to fall back on should the stored harvests of September-October or March have dwindled. Few of the known edible wild plants give food in the hot and early monsoon months, except the sour leaves of *Portulaca oleracea*, which today can be cultivated as a vegetable, its stems being dried and preserved, but which can be toxic if the intake is heavy; and the seeds of the Indian mallow or *kanghi* (*Abutilon sp.*), also a weed. So the hot months would have been difficult without adequate stores of cereals and pulses.

That the broad spectrum of plant foods was a reality and not merely our theoretical construct is borne out by two burned houses. Any charred seeds found in them may be taken to represent the subsistence (plus incidental weeds) of a family at one time. From house 129 came seeds of barley, hyacinth bean, chickpea, horse gram, lentil and *ber*—winter and summer cultigens and wild fruit. We may assume that, as today, intercropping was practiced in summer on the expectation that, whatever the monsoon was to bring, one or another of the crops would give a harvest.

The ancient villagers kept sheep, goat, cattle and buffalo, and a few pigs. Straw or the stems of summer crops are used as fodder today in our region. These carry through to about the end of March, after which animals graze in the environs of the village, or when not

working are driven to the hills. Some shepherds take their sheep and goats northward in October, towards the Tapi, and return several weeks later. Extensive deforestation means that cattle often scavenge. While full time shepherds have agreements with peasants to pen animals in harvested fields which thus get fertilized, in many villages the manure of village animals is necessary as fuel because of the scarcity of wood. We do not expect wood scarcity at Inamgaon and manure may have been used as fertilizer, although, as we have seen, its use as fuel is also documented. What intrigues me is that the number of sheep-goat coprolites in the habitation area falls between phases 2 and 3, although the volume of earth moved doubled. So if dung was being carefully collected for manure, this was in the 3rd phase rather than the 2nd, which latter is considered the period of most intensive agricultural activity at the site. Is the fall in the number of coprolites in Late Jorwe, then, due to the collection of dung for fuel, or was it that animals were being penned away from the houses or spending long months away from the village? Is the nitrogen count of sediments from courtyards, said to be high (p. 793), a sensitive enough indicator of changes in the use of courtyards between phases 2 and 3?

When people keep mixed herds of sheep and goat and cattle we expect the archaeological record to contain more bones of the former. Sheep and goat are 'the small change of the pastoral currency' and when meat is desired it is more likely that these will be slaughtered. Small stock give less milk, but as the lactation of cattle dwindles in the dry season, goat and sheep may continue to give milk. Bones at a site show the relative number of beasts slaughtered, not those actually kept. While one sheep or goat gives less than 1/15th of the usable meat that an ox does, goats can, depending on the breed, begin to reproduce in their 8th or 9th month of life, whereas cattle mature after two years. [Incidentally the age

classes made in the report, for both cattle and sheep-goat, viz. 0-24 months, 25-30 months, etc., does not take this difference in rates of growth into account.] Female goats can produce young three times in two years, whereas the birth intervals of cows range from 14 to 22 months. Thus a goat herd can double in 3 to 4 years whereas at the very maximal rate of increase a cattle herd would double only after 7 years (the 'normal' rate being closer to 20 years).[16] For these reasons we assume that people could afford to slaughter three to five times the number of small animals as cattle, without altering the relative proportion of either herd.

The quantification of animal bones was done on the Minimum Number of Individuals (MNI) principle, and shows that in the Malwa and Early Jorwe phases fewer sheep-goat were slaughtered than cattle: 75:126 and 97:223 respectively. I therefore infer that in these periods goat and sheep were of marginal importance whereas larger numbers of oxen were required for agricultural work. At Jategaon Budruk in 1921 there were 306 working cattle, 182 cows and 171 calves (a total of 659) plus 25 buffaloes, versus 132 goat and sheep, i.e., a proportion of 5:1. It may be noted that 306 working cattle are stated to have been not surplus but necessary for a population of 736 people cultivating an area of about 980 ha.

It is only in the Late Jorwe phase that sheep and goat, with an MNI of 376, exceed cattle (MNI 129). Certainly, important changes were taking place in animal husbandry. What were these changes that they also brought about a rise, in Late Jorwe, of the proportion of mature cattle slaughtered? For cattle two years and younger form 11 per cent of the total in Early Jorwe but only 3 per cent in Late Jorwe.

The blackbuck (*Antelope cervicapra*), an animal which favours grassland and can be a menace to standing winter crops as other

grasses begin to dry up, is the most common wild animal at Inamgaon. There is also the spotted deer, the four-horned antelope, and the large *sambar* deer, plus hare, jungle fowl, river turtles, mussels, fish, and crabs. The *sambar* needs thicker forest than probably existed near Inamgaon, and this may indicate hunting forays into a complementary niche. There is a marked rise from phases 2 to 3 in the MNI molluscs, fish, birds, and turtles found, in excess of the proportion of earth moved. In every phase, however, wild animals never exceed 27 per cent of all animals.

The last point concerning subsistence diversity is the existence of possible stress indicators.

(1) Inamgoan is the only Indian protohistoric site where cut and charred bones indicate the consumption of dog meat (layers 12, 5-1).

(2) One of the winter plants, the grass pea, is today both a cultivated legume and grows as a weed. It is a hardy plant surviving both water-logging and drought. It is toxic if eaten without long previous soakage in water, or if eaten as more than 10 per cent of the total intake, causing paralysis of the lower limbs and degeneration of the spinal cord. Seeds of this plant are most frequent in layers 15 and 6-3. Grass pea has also been identified at Daimabad and several other sites, but at Inamgoan it is the changes in frequency which point the question whether it was a weed or was cultivated, and whether its intake rose because of stress.

(3) Heavy intake of *Portulaca oleracea* too can be toxic and cause fatal oxalic acid poisoning in animals. But this plant may have entered the habitation area only as a weed. It is a prolific annual: Muenscher reports that a single plant can in a year produce 193,213 seeds![17]

(4) The Indian mallow is also regarded as famine food, its seeds crushed into flour and eaten as bread when nothing else is to be had. A few seeds have been found in all three phases. The fact that these stress indicators do not peak at all or peak in somewhat different levels, is of course, to be acknowledged.

Other than irrigation and subsistence diversity a third strategy for survival is storage. To date, Inamgaon appears almost unique among the Deccan chalcolithic sites in its varied and frequent provisions for storage. Whether this was actually so we will only know when other sites are similarly put to extensive and sustained excavation. Three kinds of storage facilities occur at the site. Circular mud platforms about 10 cm high and 1 metre or more in diameter, packed with sand and thorn brush to discourage rodents, are still used in the area as supports for very high cylindrical bins of twigs and grain stalks, smeared with cow dung.[18] Clusters of four flat stones could have supported large pots holding grain (or, of course, water). At Jategaon Budruk[19] wheat is mixed with ash and stored 'for the season' in earthen pots closed with mud. At Inamgaon there are also flat-based cylindrical silos lined with lime or grass and sunk into the floor. Their nineteenth century counterparts would be conical pits, 3 metres deep and 3.6 metres at the base, in which grain keeps for about two years.

400 grams of cereal per day is generally considered adequate intake for a working Indian. This amounts to 145 kg per year per individual. My calculations of volume and weight show that an Inamgaon silo 1 metre high and 1 metre in diameter (0.785 cubic metres) would have contained almost 700 kg of wheat or barley or an ample stock for a family of four for one year. But no one has yet

addressed the question why some of the chalcolithic houses appear to have more than one storage facility while others have none.

Intercommunity exchange, it is said, combines the advantages of storage and mobility. If in a good year a group makes gifts to neighbours, it can count on succour from them in hard times, on the 'delayed reciprocity' principle. Of course, tribal societies, whether acephalous or with chiefships, see periodic feuds or even depredatory wars, and political considerations also dictate the need for making potential allies. 'Exchanges' which create honorific ties between neighbouring groups can take the form of marriages; periodic visits to use quarry, pasture, forest or fishing resources; the hosting of intercommunity feasts; or exchanges of wealth goods, which, it is known in the ethnographic literature, can be converted to seed or other subsistence items in times of hardship.

The spread of Malwa and Jorwe fine pottery certainly indicates that there was much interaction from Songaon northward to the Narbada and in Malwa times even into the Malwa plateau. Also many bits and pieces of artefacts from Inamgaon such as marine fish bones, shankh and cowrie shells from the west coast; gold, serpentine and other stones from farther south in the peninsula; bones of animals from more densely forested zones; and amazonite from Gujarat bear mute witness to what could have been varying relationships with other groups.

A fundamental change in village life appears to have taken place during the last, Late Jorwe, phase of occupation. The majority of excavated houses (55 out of 69) are now small round houses instead of the usually rectangular ones that were built in the earlier phases.

Flannery[20] is quoted (p. 1005) as the authority on the correlation of rectangular houses with sedentism and round houses with semi-sedentism or nomadism. Flannery does say so, noting that there are many exceptions, but is hardly the authoritative source. A broad survey of village types in India[21] shows that houses on a circular ground plan are today rare and occur among small and scattered groups who are either recent migrants in their settlement, or use the houses for only a few months in the year, or raise animals, or hunt. There is no great mystique about this. Roofing is the most difficult aspect of house building and can determine the form of the house. Round spaces are clearly easier and therefore quicker to roof.[22] Thus Oates[23] suggests the following sequence of house forms: first tent-like structures with posts; reinforcement of the walls with piles of stones for shelter; making scooped floors for better shelter [if pit houses are confined to the Malwa phase at Inamgaon this could be significant]; and only later the construction of walls.

The thrust of Flannery's article is certainly not to establish the round = seasonal and rectangular = permanent correlation. In fact he says it is not shape which is crucial but whether individual round structures formed compounds for extended families sharing common work space and storage and cooking facilities, and rectangular houses, with their own range of tools and facilities, are the residences of nuclear families. This and Stager's work[24] on the problem of family size and structure in ancient Palestine are relevant because a cluster of rectangular Early Jorwe houses (nos. 61 to 70) seem to share a cooking *chulha* and storage facility, and, quite convincingly, have been interpreted as the compound of an extended family (pp. 178-83). On the question of house form and the decline of sedentism, Audouze's ethnoarchaeological work in the Kacchi[25] shows that no simple correlations may exist. Certainly baked brick houses with cylindrical clay silos on stone supports

are built only by agriculturists, while the Mengal pastoralists who winter in the Kacchi live in black goat hair tents near the fallow fields. Peddlar nomads of Pathan stock build four low mud walls which they cover with a double-slope tent supported by posts; in these dwellings they have fireplaces, but the tandoors are outside the shelter, and there are no silos. But what is of interest is that Brahui groups who winter in the Kacchi and leave for the mountains in spring, have houses very similar to those of the ordinary farmers, i.e., mud houses on a rectangular plan, with flat roofs. The only difference is a carefully fenced animal enclosure near the house, and the blocking of the house door when the group moves away in March.

In the last phase of occupation it appears that agriculture was on the decline and became secondary to sheep and goat herding, for although the largest quantity of earth was excavated from Late Jorwe levels, seeds of cultivated plants are much fewer than in Early Jorwe levels, and the seeds of *ber* rise significantly in frequency. No quantification is given of storage facilities but there is a decline in the number of saddle querns (pp. 718-19).

A possible causative factor, it is suggested (pp. 810-11), was salinity, and the Mesopotamian instance is cited. Of the cereals it is barley and of the pulses, chickpea or gram[26] which are the most resistant to salinity. But barley was more abundant than wheat even in the Malwa levels, and if quantities indicate importance then chickpea, though introduced in the Late Jorwe phase, was unimportant. Population densities in the late third millennium Mesopotamian plains and factors inducing violation of fallow are not applicable to the chalcolithic Deccan. And in Sumer, gravity flow irrigation, indispensable for agriculture, always carried the risk of too much rather than too little water. So the question of salinity is so far unconvincing.

Periodic scarcity and drought may have been experienced through the centuries of the existence of Inamgaon. There is a relatively high frequency of charred dog bones in level 12, of grass pea in level 14, and both were most frequent in levels 5 to 1. Careful stratigraphic recovery of rat coprolites indicates that the maximum rodent activity occurred during Early Jorwe, because, it is suggested, storage activity was most intensive at this time. The point is mentioned here because the nineteenth century descriptions of our region[27] emphasize the scale and serious consequences of field plagues. In 1826, 1835, and 1879 the June rains failed, cracks in the soil did not close up, and the rodent population proliferated and destroyed the standing crops with great rapidity. [The rodents were however the *Gollunda mettada* and *G. indicus* or jerboa-rat, not *Rattus rattus* whose bones were identified at Inamgaon.]

We know little about chalcolithic farming methods, except that antlers could have been used for ploughing. Up until the twentieth century hard acacia wood ploughs were more frequently used than iron-shod ones.[28] We can only surmise that hindrances to good harvests in the famine belt would have been not so much technology as rodents, the blackbuck, weeds, seasonal fodder shortages for working cattle, and soil deterioration in the form of water run-off and erosion or exhaustion of nutrients (the latter if periodic fallows were not observed). The main threat, however, would have been failure of the rains.

In our region the earliest remembered famine, when rains failed for 12 consecutive years, was at the end of the fourteenth century. In the nineteenth century there were seven famines. At such times there are falls in yields, falls in the observance of fallows, fodder shortages compelling people to fell trees for their leaves (particularly marked in the famine of 1900), and decreasing attachment to land. (We have not as yet worked out what proxy

elements in the archaeological record would reflect such phenomena, except the last.) People sell their ornaments, their livestock, and finally their land, and famines are often marked by 'aimless wanderings' of people. In the late fourteenth century 'whole districts were emptied of their people'.[29] One doubts that chalcolithic people wandered 'aimlessly' and, of course, there were no towns where they could seek a livelihood, and the data are convincing that they took increasingly to animal herding. It has been documented that in famine years not only is there high cattle mortality but that the proportion of [camels and] goats in flocks rises; say from 38 to 57 per cent, at the expense of cattle, which fall from say 23 to 11 per cent of the herd.[30] So the Inamgaon bone quantifications do make sense in this context.

Social factors could have played some role in the desertion of the settlement. Tribal societies, even with chiefships, see repeated fission as there are only rudimentary mechanisms to ensure compliance with group decisions. But we have to consider the abandonment not only of Inamgaon but also of Daimabad, Kaothe, and Jorwe in the famine belt, plus Chandoli to its west and Bahal, Apegaon and Tuljapur Garhi to its east. Some chalcolithic sites did have an iron age occupation, but after a substantial hiatus (e.g., Nevasa and Songaon in the famine belt, Navdatoli and Maheshwar to its north, Prakash and Nasik to its west, Kausan to its east). And by the early historic period, the knowledge of the hardy *jowar* and *bajri* had spread.[31] So the Deccan chalcolithic provides one of the few convincing cases in Indian protohistory when abandonments of sites can, with some confidence, be ascribed to 'climate'.

The chiefdom hypotheses, which is argued in the report as well as in earlier papers by Dhavalikar, cannot be fully discussed here, but is not unconnected with the scarcity-seasonality factor. In the first place it is argued that a settlement size hierarchy speaks

for chiefdoms. Daimabad is 20 hectares, Prakash is said to be 10 hectares,[32] Inamgaon 5 hectares, in what is reported as a total of 200 chalcolithic sites of which the majority are less than a hectare and few from 1 to 3 hectares in size. Shinde[33] reports the existence of 110 chalcolithic sites along the Tapi and its left bank tributaries, but many of these may have been the camps of migrants or pastoralists[34] and not all have Malwa or Jorwe pottery. No map, list, or references concerning these 200 sites appear in the report. The problem is how far we must spread our net over the map and which sites we must include in working out a size hierarchy. Jorwe pottery occurs as far north as Navdatoli on the Narmada, but all sites en route, along the Tapi, are not Jorwe sites. Moreover, the location of Prakash, one of the regional centres, on the north Tapi bank just upstream of at least three river-fording points, surely speaks for the importance of north-south movements. So the problem of the region should have been clearly formulated and discussed. And if Inamgaon was a chief's village which were its subordinate villages? Chandoli and Songaon, respectively 60 and 75 km from Inamgaon as the crow flies, may be too distant to have felt the immediate authority of the chief. So as far as I can make out, we are left with Sastevadi and Theur, 50 km west, and Walki. Much clearer evidence for a size hierarchy exists in the Tapi region with Prakash at 7.8 hectares and several sites ranging between less than half and 2 hectares.

But here again, Wright and Johnson's formula for the correlation of size tiers with chiefdoms and states need not have been used so uncritically. It has not been universally accepted. Adams,[35] for example, asks whether, with all sites in their survey (except Susa) being less than 10 hectares, the hierarchy is more seeming than real. And it has been pointed out that in Africa 3- and 4-tier hierarchies exist without chiefdoms and states.

There is also the evidence of a few houses with associated burials and storage facilities. In Early Jorwe levels we find an unusual residence complex: instead of free-standing, single room structures, units 52 to 56 seem to be integrated, adjacent units sharing party walls. Fixtures include stone supports, large fire pits, a horse-shoe shaped *chulah*, two rows of the largest post-holes at the site, a wide but shallow sunken silo, and two large platforms for storage bins. A fire pit in unit 52, 1.88 m x 0.6 m, with animal bones [incidentally this pit cannot be located on the plan (p. 194) and something appears to be wrong with the scale of the plan] is said to be a pit for roasting meat.

A little to the south of this complex lies a likely grain store, 51 and 51A, with many silos and 3 grain bin platforms. Here a fire pit, it is said, could not have been used for cooking as it is too large and is located indoors—but it is only a little larger (2.1 x 0.7 m) than the meat roasting pit which was also located indoors. The pit in 51 is interpreted as a ritual fixture. This may well have been so, but to suggest that a ruling chief exacted taxes in grain, possibly for the use of irrigation water (p. 193) is anachronistic. Chiefdoms exact tribute, but do not have taxation systems. Public works are instituted for the common good in keeping with the ideology of the chief's eminent genealogical position, his management of the sacral, including fertility, rites, and his necessarily personal relationship with his followers. So it is likely that people contributed to the chief's granary according to their ability, and he utilized the tribute for the common good. The granary may have provisioned the chief and his family, but the chief was entitled to this as guardian of the rituals which ensured fertility. For the rest, the store would have been utilized for group feasts and sacrifices, for hospitality to visitors, for succour to families in distress, or to feed people working on crafts or on digging the irrigation channel. The channel may

have been used for irrigating several plots or only the chief's lands, but it would have contributed to the welfare of all, for a chief unable to be generous would soon lose his following.

No inventory of small finds from 52 to 56 is given—one would have liked to see how these compare with finds from other houses—so other than fixtures it is only burials which raise the question of status. In unit 53, burial 60 has two 4-legged jars, one cut to half, with an ox bone and a jar, but no skeleton. Clearly this was a symbolic burial. This, in itself, has no special status connotation: symbolic cremations, with leaves, coconut, flour, ghee, cowrie shells and pomegranate seeds, are certainly known in traditional Deccan practice for people who have deserted, died on their travels, taken to Christianity, or walked out on their husbands.[36] So a symbolic burial can signify a missing corpse or else social disgrace rather than high status! In any case 60 is not the only symbolic burial at the site. There is also burial 113, and at least 4 symbolic twin-urn burials in Late Jorwe levels.

Two other burials, 59 and 55, the pit of the latter cutting into that of the former without disturbing the burial (and therefore the two probably of close kin), are also attributed to a ruling chief and his child, respectively. It is difficult to discern exactly where these burials were located. To my mind the infant burial in twin urns is definitely special because of the associated necklace of jasper and copper beads. In general, exceptional grave goods (and ornaments rarely occur in Deccan chalcolithic burials) with infants or children are considered indicators of ascriptive (or genealogical) status rather than achieved status.

Special about burial 59 (the 'ruling chief') is the anthropomorphic urn in which it is contained, the feet left intact rather than chopped off which is the common practice at Inamgaon, and the seated, cross-legged, posture. But feet were left intact also

in the cases of burials 198, 106 (the exceptionally tall lady) and 35 and 39. And the seated posture occurs also in burial 198, of a child in a 4-legged jar, 'quite close' to the chief's house. Seated burials could have been taken up for investigation. The Ahmadnagar Gazetteer[37] reports that the Gavli pastoralists follow this practice, while the Poona Gazetteer[38] describes how this rite is carried out for 'ascetics'. Thurston,[39] however, gives a long list of tribal and caste groups who follow this method of disposal. In some cases it is a general practice but among the jungle Yeruvas of Coorg it is only the women who are so buried, and among the Paraiyans and Okkiliyans of Coimbatore it is only the married men. So seated burials do not necessarily signify eminent social status.

The chiefdom hypothesis is certainly attractive, but could have been worked out more systematically. Among tribal societies it is those who face marked seasonality of food supply, peak labour seasons, the need for storage and careful handling of harvests, who offer opportunities for the emergence and development of leadership roles.

Recently it has been stressed that seasonality [marked contrasts during the year between wet and dry seasons in tropical lands] is an intrinsic component of rural poverty in the Third World, as food and fodder shortages, minimal lactation in animals, disease, and needs of hard labour to prepare fields, tend to converge in one part of the year.[40] Because of its monsoon climate South Asia as a whole has a high seasonality index compared to the rest of the world, and 'the more marked the seasonality,... the less reliable the rainfall is during the rainy season'.[41]

That Inamgaon endured for at least 600 years as an agricultural village could have been due partly to the nature of the soil which enabled the agricultural season to extend beyond the rainy season, partly to primitive irrigation which would have

performed the same function, partly also to the advantages of a tribal system which, devoid of private property in land or commodity production in agriculture, makes for equitable holdings and the pooling of labour and the fruits of labour, thus mitigating seasonal stress. But seasonality itself is not static. During phases of climatic change there is 'a tendency for rainfall changes to be most marked at the beginning and end of the wet season...'[42] If around 1000 B.C. there were repeated and severe droughts, perhaps neither tribal institutions nor the authority of chiefs could prevent repeated failures of the *rabi* crop and the sheer physical necessity to find an alternative form of subsistence.

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Notes

[1] H.H. Mann, *Rainfall and Famine: A Study of Rainfall in the Bombay Deccan.* Bombay, 1955, p. 5.

[2] V. Shinde, 'Land use pattern during the chalcolithic period in the Tapi basin', *Puratattva*, Vol. 18, 1987-88, pp. 54-60.

[3] *Indian Archaeology: A Review*, 1984-85, pp. 48-50.

[4] N. Miller, 'The interpretation of some carbonized cereal remains', *Bulletin on Sumerian Agriculture*, Vol. I, 1984, pp. 45-47. See also R. W. Dennel, 'The interpretation of plant remains', in E.S. Higgs (ed.), *Papers in Economic Prehistory*, Cambridge, 1972, pp. 149-59, where it is argued that changes in land use cannot be inferred if the plant remains of different levels at a site come from different archaeological contexts.

[5] Vishnu-Mittre and R. Savithri, 'Ancient plant economy at Inamgoan', *Puratattva*, Vol. 8, 1975-76, pp. 55-62.

[6] E. Simkins, *The Agriculture Geography of the Deccan Plateau of India*. London, 1926, pp. 38-41 and fig. 17.

[7] M.K. Dhavalikar and G.L. Possehl, 'The subsistence pattern of an early farming community', *Puratattva*, Vol. 7, 1974, pp. 39-46.

[8] M.P. Charles, 'An introduction to the legumes and oil plants of Mesopotamia', *Bulletin on Sumerian Agriculture*, Vol. II, 1985, pp. 44, 56-57.

[9] E. Simkins, op. cit., pp. 6-10.

[10] H.H. Mann and N.V. Kanitkar, *Land and Labour in a Deccan Village*, Study No.2, Bombay, 1921, pp.8-9.

[11] H.H. Mann, op. cit., gives a good discussion on effective rainfall.

[12] H.H. Mann and N.V. Kanitkar, op. cit., pp. 21-29.

[13] E. Simkins, op. cit., p. 24; Govt. of Maharashtra, *Report of the Fact-Finding Committee for Survey of Scarcity Areas in Bombay State*, Bombay, 1960, p. 19.

[14] H. H. Mann and N. V. Kanitkar, op. cit., p. 27.

[15] Ibid., pp. 24-29.

[16] G. Dahl and A. Hjort, *Having Herds: Pastoral Herd Growth and Household Economy*. Stockholm, 1976, pp. 33-38, 54-66, 89-94, 102-07, 200-10.

[17] W. C. Muenscher, *Weeds.* New York, 1936, p. 4.

[18] *Gazetteer of the Bombay Presidency*: Vol. XVII: Ahmadnagar. Bombay, 1884, p. 259. (Henceforth 'Ahmadnagar Gazetteer').

[19] H. H. Mann and N. V. Kanitkar, op. cit., p. 81 ff.

[20] K. V. Flannery, 'The origins of the village as a settlement type', in P. J. Ucko, R. Tringham and G. W. Dimbleby (eds.), *Man, Settlement, and Urbanism*, London, 1972, pp. 23-53.

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[22] A. Rapoport, *House Form and Culture*, Englewood Cliffs, 1969, pp. 23-26, 110-20.

[23] J. Oates, 'Mesopotamian social organization', in J. Freldman and M. J. Rowlands (eds.), *The Evolution of Social Systems*, London, 1977, pp. 460-65.

[24] L. Stager, 'The archaeology of the family in ancient Isreal', *Bulletin of the American Schools of Oriental Research*, Vol. 260, 1985, pp. 1-36.

[25] F. Audouze, 'Perspectives et limites de l'interpretation anthropologique des habitats en archeologie', Centre National de la Recherche Scientifique Colloque L' Archeologie de l'Iraq, Paris, 1978.

[26] J. Renfrew, 'Pulses recorded from ancient Iraq', *Bulletin on Sumerian Agriculture*, Vol. II. 1985, p. 69.

[27] *Ahmadnagar Gazetteer*, pp. 280-81.

[28] Ibid., pp. 245-46; H. H. Mann and N. V. Kanitkar, op. cit., pp. 57-59.

[29] *Ahmadnagar Gazetteer*, pp. 284-93.

[30] L. P. Bharara, 'Socio-economic consequences of drought in an arid tract', in H. S. Mann (ed.), *Arid Zone Research and Development* (Proceedings of the International Symposium), Jodhpur, 1980, pp. 439-45. Note that this study is about Rajasthan. For Maharashtra, V. M. Dandekar and V. P. Pethe in *A Survey of Famine Conditions in the Affected Regions of Maharashtra and Mysore*, Poona, 1972, p. 17 ff., in fact report a greater reduction (25 per cent) in sheep-goat than in cattle (14.4 per cent).

[31] M. D. Kajale, 'Ancient plant economy at Nevasa in the Satavahana and Indo-Roman periods', *Bulletin of the Deccan College Research Institute*, Vol. 36, 1976-77, pp. 50-61.

[32] B. K. Thapar, 'Prakash 1955', *Ancient India*, Vol. 20-21, 1964-65, p. 5, gives the size of the mound as 1400 x 600 ft. or 7.8 hectares.

[33] V. Shinde, op. cit.

[34] V. Shinde, 'Kaothe', *Bulletin of the Deccan College Research Institute*, Vol. 44, 1985, pp. 173-77.

[35] R. McC. Adams, *Heartland of Cities*, Chicago, 1981, pp. 76-78.

[36] *Gazetteer of the Bombay Presidency*, Vol. XVIII: Poona, 1885, pp. 564-65.

[37] *Ahmadnagar Gazetteer*, pp. 149-53.

[38] *Poona Gazetteer*, pp. 562-63.

[39] E. Thurston, *Ethnographic Notes on South India*, Madras, 1906, pp. 137-42.

[40] R. Chambers, R. Longhurst and A. Pacev (eds.), *Seasonal Dimensions to Rural Poverty*. London, 1981.

[41] R. P. D. Walsh, 'The nature of climatic seasonality' in R. Chambers et al., op. cit., pp. 11-21.

[42] Ibid., p. 21.

Pastoralism as an Issue in Historical Research

PASTORALISM AS AN ISSUE IN HISTORICAL RESEARCH

Pastoral production is a component of the South Asian rural economy that has rarely excited curiosity in historical research. Pastoralists who are mobile and do not live in substantial houses leave such scant remains at their halting places as to be virtually untraceable in the archaeological record, whereas the discarded remains of those who have village headquarters during one part of the year may not be particularly different from those of the other villagers who do not move with animals. When pastoralists occupy the interstices of a settled region and are controlled only indirectly by states, they find little mention in royal inscriptions or land grants; and in any case it has always been easier to tax peasants than mobile pastoralists.

In contrast with Central Asia and Africa, we do not have vast stretches of natural grassland in South Asia which would have provided habitats for large and consolidated pastoral groups; here grassland is confined to small stretches, or else is the consequences of forest degradation (see W.A. Rodgers).[1] Pastoralists in South Asia herd cattle, sheep and goat, buffalo, camel, and yak; the animals vary from region to region, but we do not have relatively self-sufficient horse-mounted multi-animal pastoralists who became a threat to sedentary societies as in Central Asia. People whose sustenance depends on their mobility cannot accumulate sizeable

personal possessions; a pastoral life can make do with a simple technology; and it is one which makes high demands on the herdsman's time and labour. F. Audouze and C. Jarrige[2] show how makeshift can be herders' habitations as compared with those of sedentary villagers, and Supriya Varma[3] records her observations of the meagre possessions which Gujarati herdsmen carry around with them. Our pastoral peoples are thus in many ways—or are regarded as—fringe groups, without economic or military might, and in recent times have been scattered amongst farming communities as members of low ranking castes. Perhaps at one time some of the groups lived together as socially distinct tribes, but today none of them command spatially separate territories. Pastoralists have also been marginalized by the institution of market systems. It is significant that Buchanan, when he was travelling in the early nineteenth century through a part of the Mysore plateau famous for its cattle breeding, says he saw no herds—the herdsmen had fled in fear at news of a stranger in the land.[4]

The relative importance of pastoralists must have decreased through time as agriculture was extended, with encouragement from states interested in agricultural revenues. Such expansion could have been at the cost of grazing space, as evidenced by an inscription of about AD 860 from the vicinity of Jodhpur, about a village hitherto 'infested by Abhiras' (a pastoral group) being rehabilitated and rebuilt.[5] Daniel Balland's paper[6] on the western borderlands of South Asia shows that the frequency of conflict between mobile pastoralists and sedentary villagers is one of the repercussions of agricultural expansion, as also pastoralist impoverishment and ultimate depastoralization.

The Indian Forest Act, imposed by the British in 1878 (as well as the creation of plantations), deprived herdsmen of dry

summer grazing areas. Already in 1893, Voelcker had perceived the dangerous implications of this Act.[7] The advent of motor roads and vehicles and the shrinkage of pasture in the face of expanding cultivation has meant that the camel is no longer prized as a fast pack animal, and special camel breeds are now becoming undistinguishable.[8] Finally, we may recall that it is today the buffalo which is the milch animal, and that development experts focus on raising the productivity of agriculture and the buffalo, on mutton and wool exports, on imports of exotic animal breeds, but not on the traditional forms of cattle and sheep herding.[9] Little wonder then, that we have few ethnographies of the various animal-raising groups in the country.

Existing work that focuses or touches on pastoralism in South Asia's past refers mainly to protohistoric times,[10] and gets more scarce as we move into later periods. And not all studies enquire into specific details such as the geographic range of past herdsmen, or the composition of herds, or pastoral specialization versus mixed subsistence as the prevalent land use form. Thus in our work at the CHS we have often come up against grey areas and impasses. When we held a Workshop on pastoralism in January 1991* such problems, and our slender resources, prompted us to invite scholars who have had direct experience of pastoralism, either as geographers or ecologists, or ethnographers, or as development economists. It may be considered a minor achievement that we had much to discuss over three days, and that we were able to go into all manner of details such as small stock versus cattle, pastoralist craft production, what various pastoral groups carry with them

* at the JNU

(grain or flour), the dangers from predatory animals for herds, and the manifold factors behind shifts in pastoral routes as well as 'depastoralization'. Such themes lie largely unexplored in our part of the world and needs to be 'pushed'. Geographically, the papers at the Workshop covered the dry western zone of South Asia, beginning with the western mountain frontiers and ending in the central Deccan plateau.

Fortunately, one contribution of the proceedings has been to raise awareness that pastoralism, though 'traditional', is by no means an unchanging land use form. The papers of Balland and P.S. Kavoori highlight change; Rodgers indicates that 'environment' itself is dynamic (a point which historians tend to appreciate at best at the theoretical level); Varma and Ajay Dandekar give attention to past changes and are critically aware that present patterns cannot be mechanically imputed to the past;[11] Sujata Gopinath's paper on the Deccan neolithic dealt with a form of herding which may not even have survived into the first millennium BC; and M.L.K. Murty, using oral traditions, explored the initial stages of pastoral specialization in one particular case.[12] Meanwhile Audouze and Jarrige show that no short cut or 'check-list' approach will enable us to detect the archaeological remains of pastoral activity, which, even in one small region, can take diverse forms; and Anil K. Gupta's paper teaches us that the ecological approach must give attention to the way in which geographic potential and limitations function in dynamic relationship with individual vs. community resources, social networks, skills, and, most important, relative social positions as well as the land use and risk insurance strategies of other groups.[13]

India is home to roughly 15 per cent of the world's population, 0.4 per cent of its natural grassland and 5 per cent of its sheep, but about 18 per cent of its cattle population. The importance of cattle

lies in their agricultural draught work as well as their milk. In the *Rgveda* it seems that milk and its products have a social and ritual importance above all other foods; in the *Silappadikaram*, cowherds by turn carry milk products to the Pandya palace; in the *Arthasastra*, pastoralists pay tribute to the king in milk products; and in the Mughal period it appears that most of the population, including the poor, ate ghee regularly. We can assume that through history milk was an important source of protein for all the South Asian population, except those eastern and northeastern groups who have a genetic intolerance for lactose. Other factors favouring large cattle populations will be the taboo on beef prevalent after the close of the first millennium BC, the communal grazing of cattle, and the inability of the cow of the *Bos indicus* species (unlike the *Bos taurus* of the western Asia and Europe) to lactate unless the calf is alive and in sight, which discourages culling during infancy. Most important would have been the factors of fertilizer and energy for agricultural production.

Animal manure has through the ages been the fertilizer in South Asia. Voelcker noticed its importance during the drought of 1881 when fields lying adjacent to one another were either bare or had a good growth, depending on the application of manure.[14] On irrigated tracts and on some (especially red) soils of the peninsula, manuring has been of critical importance, and we have reports of anything from twelve to twenty cartloads being necessary for each cultivated hectare. For instance, early in this century a village of 105 owner-cultivator households in the Tamil country had a total of 1,722 cattle, sheep, goat, and buffalo, and used 95 per cent of the dung to fertilize its fields.[15]

In most part of South Asia there is a sharp contrast in the spacing of rainfall over the twelve months of the year. During the long dry season vegetation growth is severely retarded, so that

agricultural activity must be scheduled to take advantage of the nitrogen flush produced by the first rains. Such schedules, as also labour bottlenecks, cannot be maintained without recourse to oxen power. Also, the watering of fields has, over a large area, been dependent on wells, so that cattle may work longer hours at lifting water than at ploughing or threshing.

Thus our purely milch cattle breeds are few, at least today, and are confined to the Ravi basin, the Gir area, western Andhra Pradesh, and Sind. Most breeds are dual purpose, delivering milk as well as draught power. Such is the famous Hissar breed, remarkable for its minimal decline in lactation during the hot dry months. This breed favours a northwest to southeast tract in Haryana stretching between the Saraswati–Ghaggar and the Jumna, in which the calcium content of the soil and vegetation is high.[16] In the Mughal period the villages of this tract were remarkable for their cattle pens, some villages having even fifty such;[17] from this tract Hissar provided ghee for the emperor's kitchen, whereas Sirsa sent ghee to Multan.[18] This belt does not lie very far northwest of Mathura, the locus of the cowherd Krishna cult elaborated in the *Bhagavata Purana* and the legendary home of the pastoral Yadava rulers who were later obliged to migrate to Saurashtra. Near Mathura, the plain east of the Jumna has better soils and moisture than that on the west; significantly, however, early iron age settlements favoured the west bank. The higher terraces on this bank may have been but one factor in this preference, for Dalal points out that some of these sites are located in niches where the best pastures of the district are to be found.[19]

Even if rams can carry small loads, sheep are not working animals. They mature earlier and reproduce faster than cattle, and require less concentrated and succulent grazing, doing well on field stubble and weeds. Thus except in very humid zones such as the

mountainous northeast or the crest of the Western Ghats, sheep can adapt to most South Asian regions.[20] (In the fourteenth century Marco Polo claimed that the sheep of the Andhra kingdom were the largest in the world). Sheep can combine with cattle in a flock, eating the shorter shoots and leaving the taller growth for cattle.[21] Sheep droppings constitute valuable manure: two hundred years ago it was observed in the south that fields could be productive for about six years if a thousand sheep per hectare were penned in them for about a week. It is likely that through the centuries sheep have been replacing cattle in number; Dandekar, for example, surmises that in the past the Deccan pastoralists kept mixed herds and not just small stock as today. Reasons for changes in herd composition could have been denudation of the vegetation cover, or a rising demand for wool, or expanding markets for meat. But no one has investigated the when and where of such change. Were the Mughal cities, for instance, important mutton markets?

Other than meat and ghee, important pastoral products are leather and wool. It would be useful to explore when and where these were produced on a substantial scale, and how such crafts linked up with pastoralist economies. In the later nineteenth century India was a world producer of hides and skins; in the Mughal period leather production is attested in Sind; in fact, production on a substantial scale may be of fair antiquity: when calcium carbonate encrustation was observed on certain large pots from Arikamedu, it was inferred that these were used not for dyeing but for curing animal skins; and large heaps of shell found at Vasavasamudram may also testify to this industry in the late first millennium BC.[22] Incidental references in early Buddhist texts mention the use of woollen shawls and rugs, but also indicate that sheep's wool was especially dear in the Gangetic region, and that fine wool was imported.[23] But the *Arthasastra* (11:29,46) refers to the collection

of wool from sheep and goats every six months, and to white and red woollen cloth for blankets, covers, animal coverings, armour, and so on;[24] in the medieval period an embassy to China carried, inter alia, five hundred pieces of fine woollen material; and wool production is attested for several parts of the Mughal empire.

Kavoori describes how the extension of agriculture in Rajasthan has 'eaten into' common pastures and induced great out-migration of herdsmen, while at the same time the introduction of irrigation in Haryana has provided a new tract for the grazing of flocks from Rajasthan. Agriculture and animal herding in our part of the world are complementary and interdigitating, rather than spatially separate, forms of land use. When grain is scarce in a region, the greater is the importance of livestock (and probably also the ability of herdsmen to move requisite distances with the animals). *Jowar, ragi,* and the fast growing *bajra*, the main crops of the dry zones, each have their relevance for pastoralists. The tall *jowar* plant is not strictly an annual, because if moisture remains in the soil it can continue to tiller after it has been cut. Thus *jowar* stubble has a special importance for cattle, but not so much the dry stalks of harvested *bajra*. *Ragi* is a shorter plant and its fields require regular weeding and thinning out, so that occasionally animals are allowed to eat the tops of an overluxuriant early growth; but animals may not graze freely about the village after the *ragi* harvest, because this grain must dry in stacks in the sun for several weeks before it is ready for threshing. Sugarcane, which was grown in so many regions in the past, affords yet another kind of complementarity. The crop requires large manure inputs, and large animals to drive the cane mills, and a harvested field will yield great quantities of leaves and green tops, valuable animal feed.

The complementarity of herds and crops in ancient times is revealed by the use of the term *grama* in contexts where the

connotation is not only the habitation and its fields, but also the *gocara* or grazing grounds. Sometimes, as against *grama*, a settlement can be called a *ghosa* or a habitation of herdsmen who supply milk, and which can be located near a village though distinct from it.[25] While in some contexts there may have been a conceptual distinction between *grama* or *janapada* on the one hand, and *aranya* on the other, it cannot mark a land use distinction, as we can tell from the famous descriptions of forest in the *Harsacarita* and the *Kadambari* (seventh century). Forests would have been the niche not only of hunter-gatherers and hermitages, but also a valuable resource for peasants, iron smelters, and pastoralists. (Rodgers' point about forest as a pastoralist resource needs to be carefully noted.)[26]

The relevance of agriculture and pastoralism to each other can be perceived at the local level when we study the location of a site like Hastinapur. This ancient settlement stood on the edge of the high *bangar* terrace on the right bank of the Ganga, where long years of intensive cultivation have been known. But about 30 m below lies the wide *khadar* trough of the river, prone to heavy monsoonal flooding, and till recently the habitat of nutritious tall grasses and jungle, of tiger and elephant. This trough has for centuries been a valuable cold season grazing area for the cattle of villages on the terrace. Yet when the economic potential for cultural development in the iron age in the Gangetic valley is discussed, historians tend to focus exclusively on agricultural productivity and the role of iron tools in forest clearance, as if forests were a hindrance to rural prosperity.

Interdigitation and complementarity, however, do not mean that only mixed farming prevailed. We have to consider pastoral nomadism, as well as 'agropastoralism'. (There is of course no hard and fast classification—see Rodgers' categories) Agropastoralism

can prevail in zones which cannot support successful agriculture or pastoralism exclusively; those who depend more on herds for their livelihood spend less time and labour on fields, and vice versa.[27] (In mixed farming, wealth means increments in both). Families may find their fortunes more closely tied with cattle and may move with them, but after some years the balance may shift to an emphasis on cultivation. True 'specialization', in contrast, applies to nomadic pastoralists who own flocks larger than necessary for their immediate needs, and whose prosperity is critically dependent on their routes, range, and schedules of movement. This strategy ensures the maximum utilization of scattered grazing in the face of variations in resource availability, spatial and temporal. Perhaps in the past there were several groups of specialized pastoralists. The *Arthasastra* (II.46) refers to state herds of a hundred cattle, each entrusted to a single herdsman, who could only have been an expert; it also appears to distinguish the subsistence herd (46.4) from the fallow herd (46.6), perhaps revealing the specialists' strategy of reserving the best grazing for the productive animals.[28]

We also know of the pastoral Abhiras. They first appear in the epics and *Puranas* in the Indus and Sarasvati plains and adjoining Rajasthan, but in later centuries are found in several other regions.[29] We are reminded of the fact that pastoralism as a form of land use contrasts with agriculture in that it makes no 'capital investment' on land; grazing terrains, as the papers of Balland and Kavoori show, are always prone to shift, for a number of reasons, so that ultimately new 'territories' are carved out.[30]

A region of mixed farming witnessing a steady population increase and the extension of agriculture could begin to experience shortage of grazing, so that some people were forced into long-range mobility and thus specialization in herding. (Agricultural intensification, on the other hand, would require higher manure

inputs). Yet we also know that many pastoralists are now grouped as castes dispersed amongst farming populations. They may have a village base and move seasonally with their herds; like nomads they may exhibit some cultural distinctness; but unlike the latter they lack group rights over specific grazing zones, and without group coherence they lack the ability to be politically autonomous. When we learn that the Abhiras in the second century became militarily conspicuous, serving the Kshatrapa rulers as *senapatis*, or that some Abhiras became politically dominant in the Deccan after the fall of the Satavahana kingdom, the question arises whether the group was still engaged in herding, or whether 'Abhira' was now only an ethnic label. For we know that when pastoralists enter regional politics, albeit initially only as raiders or mercenaries, their pastoral life becomes less exclusive and less satisfactory to them. Their access to weaponry or loot creates new needs for luxuries, so that they become increasingly parasitic.[31] Thus it is significant that if the Abhiras were originally a distinct *mleccha* tribe, and in the sixteenth century receive dismissive reference by Krishnadeva Raya of Vijaynagar as forest dwellers, albeit a group 'able to enforce their orders',[32] today they are a caste dispersed over central India and the Deccan.

There are other scraps of evidence regarding pastoral specialization. When Hieun-Tsang wrote in the seventh century about a myriad families in the low tracts along the Indus subsisting on animals and having neither government nor social distinctions, we can infer the existence of pastoral tribes.[33] But we do not know whether the *manratis* mentioned in tenth century Chola temple inscriptions were an ethnic group, a caste, or a professional group. In donatory inscriptions they take charge of flocks of often 90 sheep or 32 cows, which will provide milk for the ghee to keep a donated lamp burning in the temple. Occasionally it is stated that the sheep

shall neither age nor die.[34] If this means that a *manrati* himself had to maintain the age and sex structure of a herd to ensure the requisite milk supply, then he was certainly a specialist herdsman. We can explore whether 90 sheep was a manageable herd size for a family in the Tamil country, whether 90 sheep could have sufficed both for the ghee for the lamps and sustenance of the family, or whether we can infer that the *manratis* tended the temple animals together with their own. Vairavel suggests that the *manratis* were recent immigrants into Chola land, and points to evidence for their occasional functioning as corporate group.[35]

Many kinds of change other than shifts of grazing areas can be explored, such as the transition from the neolithic to the iron age in Karnataka and Andhra. At the Workshop were discussed the relatively large number of ash mounds (residues of the burning of dung heaps) and their locations vis-à-vis the contemporary neolithic villages. Obviously, fairly large herds were being penned for long periods at certain spots, and great amounts of dung were not being removed to the fields. Perhaps, with the hoe cultivation of *ragi*, manure would only have aggravated the problem of weeds. But in the subsequent iron age we have almost no ash mounds. The reason cannot be a decline of pastoralism—Leshnik in fact argues that there were larger pastoral than farming populations at this time. Was manure now being used on fields because of changes in agricultural techniques? The large-scale production of iron in this period could also have been a factor, traditional iron smelting in South Asia being enormously consumptive of wood. It may be that small pockets witnessed local deforestation, so that dung was now required also as domestic fuel. Alternatively, it may be social change—new kinds of linkages with villages, or the fission and dispersal of descent groups and their herds—which explains the absence of ash mounds in the iron age.

The mobility of pastoral groups takes on a special dimension when we consider the arid tracts of western Rajasthan. To what extent was urban growth here dependent on the domesticated camel for transportation and regional commerce? Again, in which periods was salt carried to the Deccan plateau from the west coast by pastoralists on their annual movements? For Dandekar finds that transhumant circuits on the plateau may not at all times have extended into the Konkan as today. In the high Himalaya only the yak-breeder Sherpas and Bhotias could cope with the altitudes and treacherous tracks, and Bhotia winter pastures lay in Tibet, so that for long it was various Nepalese pastoral groups who carried the trade between the north Indian plains and Tibet, a trade in Indian grain, sugar, dyes, etc., for salt and furs from Tibet and Chinese products like silk and tea.[36] More interesting, the paper of Balland shows that herdsman-traded products do not move only between the end points of an annual grazing migration.

We have to consider mobility in yet another dimension. As is well known, Babur commented on the ease with which north Indian villages could be depopulated. Periodic desertions appear to have occurred due to epidemics, drought, or political vicissitudes. For the protohistoric period village abandonments are especially marked in Gujarat, Malwa, and Maharashtra before the onset of the iron age. And Mate points out that for the long period from the fifth to the thirteenth centuries there is a remarkable paucity of habitation sites in Maharashtra.[37] Varma deals with protohistoric abandonments (as also varying village forms) in her paper, and asks whether people could have taken to mobile pastoralism, as suggested by Dhavalikar (see the preceding essay) for late Jorwe-period Inamgaon.

But overall subsistence shifts would surely have involved more than merely the degree of mobility. The pivot of social relations

would have ceased to be the ancestral lands and joint tenure in such lands, and would instead have focused on camping groups, stock associations, and exchanges of livestock. It has been said[38] that amongst pastoralists kinship does not play all the manifold functions it does in agricultural tribes. Theoretically we would therefore expect that subsistence flexibility involved also social flexibility. The incorporation of pastoralists into the caste system may be relevant in this context.

Neither can cultural values be disregarded. Because of state policies, the Luri pastoralists of the Zagros were forced into a certain amount of agriculture, but the Luri continue to perceive crop raising as only a buffer against herd losses. Although their herds have slow growth rates, the Luri use the agricultural surplus mainly as something to be reinvested in flocks.[39] Again, in Niger there are cultural contrasts between the pastoral Fulani and the cultivator Mangari peoples. The Mangari need cattle for field preparation, and own them, but entrust larger herds to the Fulani to tend, even when this involves risk. They do not take to pastoralism, although in this area it is the pastoralists who enjoy the political advantage. Part of the reason is that the Mangari place no high or symbolic value on cattle—it is the land which they value, and the village which is their social world—and they fear the bush.[40]

Yet simple materialistic explanations do not always work with cultural values, in the sense of 'economic value = cultural value'. It has recently been pointed out that the subsistence systems of the east African Nuer and Mursi peoples are not technically 'pastoral', because these groups raise millets and do not have herds large enough to subsist on exclusively. Cultivation is precarious, however, and during lean periods grain intake can plummet while milk is the reliable food; and during the frequent droughts people fall back on the blood and meat of their animals. Such groups 'maintain the

values and outlook of a pastoral people despite the fact that cultivation provides a greater proportion of their subsistence than does pastoralism'.[41] Bridewealth is paid in large numbers of cattle; repeated cattle raids against neighbouring groups occurred in the past; and the exchange of animals is a mechanism in the creation and maintenance of kinship networks. We know the importance of cattle in Rgvedic sacrifices, rituals, *daksinas*, raids, and trophies.[42] But does this enable us to place a tidy 'pastoral' label on the economy so represented? The *Rgveda* refers also to barley cultivation, to the plough and to well irrigation, and to cattle grazing on fallow fields and doing field- work. Can it be that agricultural production was neither negligible nor undervalued, but that land was freely available and immobile and not an appropriate object of honourable exchange, whereas cattle, albeit 'marginal for subsistence', being self-reproducing and 'uniquely durable and transferable', had the greater social value?[43] Some scholars think that the *Rgveda* reflects the gradual introduction of agriculture in a pastoral society. Thapar asks[44] if it could have been other groups who were engaged in cultivation, but a third kind of interpretation may well be explored.

For the student of South Asia, studies on pastoralism in other parts of the world may be of great interest, especially when they involve issues such as ecology, social groupings and networks, the development of political institutions amongst pastoralists, their 'external' relations (with states), social and cultural attitudes to the animals and to livestock exchange, and the process of sedentarisation. Ecology no longer means predicting the social outcome of environmental factors, or asking how herds mediate in the man-land equilibrium. Production and exchange and their connexions with social and political processes are important, and precise quantifications of culling practices, herd structure, optimal herd size, and so on, are also being done.[45]

In these pages I have tried to explain that rural economies cannot be reduced to agricultural production; we have to investigate the livestock input, and ask when and where we are dealing with mixed farming or agropastoralism or nomadic, specialized pastoralism. In the context of drought or famine, mobile pastoralism takes on a special relevance. Pastoralist production can also impinge on urban economies when it comes to markets for meat or leather or wool, and urban crafts utilizing skins or wool; moreover, intensive cultivation or timber collection (for fuel) in the urban hinterland would in turn have repercussions on grazing. We have also seen that pastoralist mobility and relations with sedentary groups have important implications for trade, for political processes, and also for detribalization. Finally, there are also cultural symbols and the incorporation of pastoral cults into the religious systems of the literati. It can only be hoped that the younger generation will not ignore this rich field of study.

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Notes

[1] W.A. Rodgers, 'Environmental change and the evolution of pastoralism', *Studies in History*, Vol. 7.2, 1991, pp. 195-204.

[2] F. Audouze and C. Jarrige, 'Nomadic pastoralists and sedentary agriculturists in the Kachi Plain, Pakistan', *Studies in History*, Vol. 7.2, 1991, pp. 231-54.

[3] S. Varma, 'Villages abandond: The case for mobile pastoralism in post-Harappan Gujarat', *Studies in History*, Vol. 7.2, 1991, pp. 279-300.

[4] F. Buchanan, *A Journey from Madras through the Countries of Mysore, Canara, and Malabar*. Vol. I. Madras, 1870, pp. 295-97. In historical records we often find

that pastoralists are mentioned after—and rank below—agricultural groups, merchants, and minor village functionaries. Occasionally we find a reference to their emigration from a territory in the face of heavy taxation: see T.V. Mahalingam, *Administration and Social Life under Vijayanagar*, Madras, 1969, pp. 24-25.

[5] B.D. Chattopadhyaya, *Aspects of Rural Settlements and Rural Society in early Medieval India*, Calcutta, 1990, pp. 3-4. Occasionally, however, the reverse process is documented: occupied lands are turned over to pasture. See N. Vairavel, History of the Pastoral Communities of Ancient and Medieval Tamil Nadu, unpublished Ph.D. Thesis, Madurai Kamraj University, 1989, p. 20.

[6] D. Balland, 'Nomadism and politics: The case of Afghan nomads in the Indian subcontinent', *Studies in History*, Vol. 7.2, 1991, pp. 205-230.

[7] J.A. Voelcker, *Report on the Improvement of Indian Agriculture*, London, 1893, pp. 139, 169-74.

[8] Government of India, National Commission on Agriculture 1976: *Abridged Report*, Delhi, 1977, p. 357

[9] Thus the report of the Commission on Agriculture, cited above, dismisses traditional livestock raising with the observation that sheep raising is unsatisfactory because shepherds are mobile and economically backward!

[10] Some works of interest are as follows, but this is not a complete bibliography. L.S. Leshnik, 'Pastoral nomadism in the archaeology of India and Pakistan', *World Archaeology*, Vol. 4, 1972, pp. 150-66; L.S. Leshnik, *South Indian 'Megalithic' Burials: the Pandukal Complex*, Wiesbaden, 1974; L.S. Leshnik and G.D. Sontheimer, (eds.), *Nomads and Pastoralists in South Asia*, Wiesbaden, 1975; G.L. Possehl, 'Pastoral nomadism in the Indus civilization', in M. Taddei, (ed.), *South Asian Archaeology 1977*, Naples, 1979, pp. 537-51; D. Srinivasan, *Concept of Cow in the Rigveda*, Delhi, 1979; M.L.K. Murty and G.D. Sontheimer, 'Prehistoric background to pastoralism in the southern Deccan', *Anthropos*, Vol. 75, 1980, pp. 163-84; S. Ratnagar, 'Pastoralists in the prehistory of Baluchistan', *Studies in History*, Vol. 3, 1987, pp. 137-54; M.K. Dhavalikar, *The First Farmers of the Deccan*, Pune, 1988; Kuldeep Bhan, 'Late Harappan settlements in western India', in J.M. Kenoyer (ed.), *Old Problems and New Perspectives in the Archaeology of South Asia*, Madison, 1989, pp. 219-42; G.D. Sontheimer, *Pastoral Deities of Western India*, London, 1989. The work of N. Vairavel, cited above (n. 2) shows that much of interest can be gleaned on this subject. For a basic understanding of pastoralism the student may begin with: R. Patai, 'Nomadism, middle eastern and central Asian', *Southwestern Journal of Anthropology*, Vol. 7, 1951, pp. 401-14; E. Bacon, 'Types of pastoral nomadism in central and southwest Asia', *Southwestern Journal of Anthropology*, Vol. 10, 1954, pp. 44-57; R. and N. Dyson-Hudson, 'Subsistence herding in Uganda', *Scientific*

American, Vol. 220, 1969, pp. 76-89; F. Barth, *Nomads of South Persia*, Oslo and New York, 1961; R. Pehrson, *The Social Organisation of the Marri Baluch*, Chicago, 1966; A. Leeds and A.P. Vayda, (eds.), *Man, Culture and Animals*, Washington, 1965; and for the present day situation in India with A.K. Bose, 'Pastoral nomadism in India', *Indian Journal of Social Work*, Vol. 28, 1968.

[11] P.S. Kavoori, 'Transhumance in western Rajasthan: Trends and transformations', pp. 255-78; Ajay Dandekar, 'Lanscapes in conflict: Flocks, hero-stones and cult in early medieval Maharashtra', pp. 301-24; both in *Studies in History*, Vol. 7.2, 1991.

[12] M.L.K. Murty, 'Ethnohistory of pastoralism: A study of Kuruvas and Gollas', *Studies in History*, Vol. 9.1, 1993, pp. 33-42.

[13] Anil K. Gupta, 'Pastoral adaptation to risk in dry regions: A framework for analysis', *Studies in History*, Vol. 7.2, 1991, pp. 325-341.

[14] Voelcker, *Report*, p. 93.

[15] G. Slater, (ed.), *Some South Indian Villages*, London, 1981, on village Vadamalaipuram in district Ramanathapuram. Already in the Gupta period cowdung was being used as domestic fuel: S.K. Maity, *Economic Life in Northern India in the Gupta Period, A.D. 300-500*, Delhi, 1970, pp. 122-23.

[16] M.S. Kataria, *Geography of Indian Livestock and White Revolution*, Kurukshetra, 1982.

[17] I. Habib, 'Agrarian economy', in T. Raychaudhari and I. Habib (eds.), *The Cambridge Economic History of India*, Vol. I, Delhi, 1982, p. 52.

[18] I. Habib, 'Non-agricultural production and urban economy', op. cit., p. 84; I. Habib, *Atlas of Mughal India*, Delhi, 1982.

[19] Roshen Dalal, 'The historical geography of the Mathura region', in D. Srinivasan, (ed.), *Mathura: the Cultural Heritage*, Delhi, 1989, pp. 4-5; also R.S. Sharma, 'Trends in the economic history of Mathura', op. cit., pp. 31-32. It is of considerable interest that stone tool using agricultural-pastoral people of the first millennium BC in eastern Africa also appear to have preferred savannah tracts to those with rich soils; see J. Clutton-Brock, 'Cattle in ancient north Africa', in J. Clutton-Brock, (ed.), *The Walking Larder*, London, 1989, p. 208.

[20] G.C. Taneja, *Sheep Husbandry in India*, Delhi, 1978, pp. 1-3.

[21] Meanwhile a few goats will give milk closest in constitution to human milk, and will keep a sheep flock on the right track. Goats can live on drier vegetation, and do not interfere with cattle. In a broad sense a diversified herd is a herd more secure against drought and disease and its milk output less subject to seasonal

fluctuation: goats do not breed with the same marked seasonality as do sheep and cattle.

[22] R. Nagaswamy and A.A. Majeed, *Vasavasamudram*, Madras, 1978, pp. 24-27.

[23] G. Lad, 'Textiles in the Vinaya Pitaka', *BDCPRI*, Vol. 49, 1990, pp. 227-35.

[24] R.P. Kangle, *The Kautiliya Arthasastra*, Bombay, 1963, pp. 118-19, 194.

[25] A.K. Chaudhary, *Early Medieval Village in Northeastern India*, Calcutta, 1971; B. Suryavanshi, *The Abhiras: Their History and Culture*, Baroda, 1962, p. 18 ff.; Chattopadhyaya, *Aspects of Rural Settlements*, p. 5 ff.

[26] See also R. Guha, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*, Delhi, 1989, pp. 28-33 on the use of chir-pine and oak forest in upper altitudes, and the value of the undergrowth and loppings.

[27] One of the best works I have read on agropastoralism is G. Massey, *Subsistence and Change: Lessons of Agropastoralism in Somalia*, Boulder, 1987.

[28] Kangle, *Arthasastra*, pp. 190-95. A hundred cattle would constitute a large herd by present standards. With normal culling practices a herd of 50 to 64 head can suffice for a family, according to G. Dahl and A. Hjort, *Having Herds*, Stockholm, 1976, pp. 175-78. M. Gadgil and K.C. Malhotra, 'Ecology of a pastoral caste: the Gavli Dhangars of peninsular India', *Human Ecology*, Vol. 10, 1982, pp. 107-43, calculate that on the upper Ghats in Maharashtra 40 cattle or 10 buffalo and 15 cattle are the minimum herd size for a Gavli family, sustained, in this habitat, on one square kilometer of grazing land.

[29] Suryavanshi, *Abhiras*.

[30] For shifts in grazing routes see also D.J. Stenning, 'Transhumance, migratory drift, migration: Patterns of pastoral Fulani migration', *Journal of the Royal Anthropological Institute*, Vol. 87, 1957, pp. 57-73. D. Balland, 'Nomade et semi-nomades Baluc d'Afghanistan', *Revue Geographie de l'Est*, Vol. 22, 1982, pp. 117-44, describes how Baluchis from the region southeast of the Caspian dispersed, between the tenth and twentieth centuries, over Kerman, Herat, Seistan, Baluchistan, and Bactria. Baluch groups in Afghanistan have given up their own language for Pashto or Persian; their land use strategies have increasingly diversified; but most important, while ethnic consciousness survives, the diaspora in Afghanistan has brought about a true detribalization of the Baluchis.

[31] The most dramatic of such changes is described by E.A. Thompson, *A History of Attila and the Huns*, Oxford, 1948. Hun society, increasingly dependent on Roman weaponry, gold plates, and Indian pepper, disintegrated in less than a century.

[32] T.V. Mahalingam, *Administration and Social Life under Vijaynagar*, Madras, 1969, p. 110.

[33] T. Watters, *On Yuan Chwang's Travels in India*, London, 1905, p. 252.

[34] P.R. Srinivasan, *Tiruvannamalai, Vol. I, Inscriptions*, Pondicherry, 1990, p. 185 ff.

[35] Vairavel, *History of Pastoral Communities*, pp. 29, 41-51.

[36] C. von Furer Haimendorf, *Himalayan Traders*, London, 1975.

[37] M.S. Mate, 'The clay feet?', *BDCPRI*, Vol. 49, 1990, pp. 243-49.

[38] P. Bonte, 'Non-stratified social formations among pastoral nomads', in J. Friedman and M.J. Rowlands (eds.), *The Evolution of Social Systems*, London, 1977, pp. 173-200; and 'Marxist theory and anthropological analysis', in J.S. Kahn and J.R. Llobera (eds.), *The Anthropology of Pre-Capitalist Societies*, London, 1981, pp. 22-25. For a different perspective see W. Irons and N. Dyson-Hudson (eds.), *Perspectives on Nomadism*, Leiden, 1972, especially the articles by Dyson-Hudson and Swidler.

[39] J. Black-Michaud, *Sheep and Land*, Cambridge, 1986.

[40] M. Horowitz, 'Ethnic boundary maintenance among pastoralists and farmers in the western Sudan', in W. Irons and N. Dyson-Hudson (eds.), op. cit., pp. 105-14.

[41] D. Turton, 'Response to drought: the Mursi of Ethiopia', in J.P. Garlick and R.W. Keay (eds.), *Human Ecology in the Tropics*, London, 1977, p. 171; and 'The economies of Mursi bridewealth', in J.L. Comaroff (ed.), *The Meaning of Marriage Payments*, New York, 1980, pp. 67-92.

[42] D. Srinivasan, *Concept of Cow*; R. Thapar, 'Dana and Daksina', in R. Thapar, *Ancient Indian Social History*, Delhi, 1978, pp. 105-21.

[43] D. Forde, 'Ecology and social structure', *Proceedings of the Royal Anthropological Institute for 1970*, pp. 23-24 and n. 13. Also H.K. Schneider, 'Economic development and economic change', *Current Anthropology*, Vol. 15, 1974, p. 262, and comment by F.P. Conant, p. 266 that the Pokot 'metaphor' is based on herding even while three times as many Pokot do farming as herding. For a longer bibliography see E. Shanklin, 'Sustenance and symbol: anthropological studies of domesticated animals', *Annual Review of Anthropology*, Vol. 14, 1985, pp. 375-403.

[44] R. Thapar, *From Lineage to State*, Delhi, 1984, pp. 26-27.

[45] Dahl and Hjort, op. cit., and Gadgil and Malhotra, op. cit., the latter being an exceptional case study for India. For the development of political institutions see

P. Salzman, 'The Proto-state in Iranian Baluchistan', in R. Cohen and E. Service, eds., *Origins of the State*, Philadelphia, 1978, pp. 125-40; and 'Adaptation and political organization in Iranian Baluchistan', *Ethnology*, Vol. 10, 1971, pp. 433-44; P. Burnham, 'Spatial mobility and political centralization in pastoral societies', *Pastoral Production and Society*, no. 1. Cambridge, 1979, pp. 349-60; L. Krader, 'The origins of the state among the nomads of Asia', in H.J. Claessen and P. Skalnik, eds., *The Early State*. The Hague, 1978, pp. 93-107. For relations with agrarian states, the classic is O. Lattimore, *The Inner Asian Frontiers of China*, New York, 1951, as well as the same author's *Studies in Frontier History*, Paris, 1962. Two very important recent works are: A. Khazanov, *Nomads and the Outside World*. Cambridge, 1984 and T. Barfield, *The Perilous Frontier: Nomadic Empires and China*, Oxford, 1989.